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RESERVE

3<sup>6</sup> TASK FORCE TABLE REPORT //

Vol. I of V - Copy 2 of 5

SAMPLING METHOD AND  
REQUIREMENTS QUESTIONNAIRE

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## C O N T E N T S

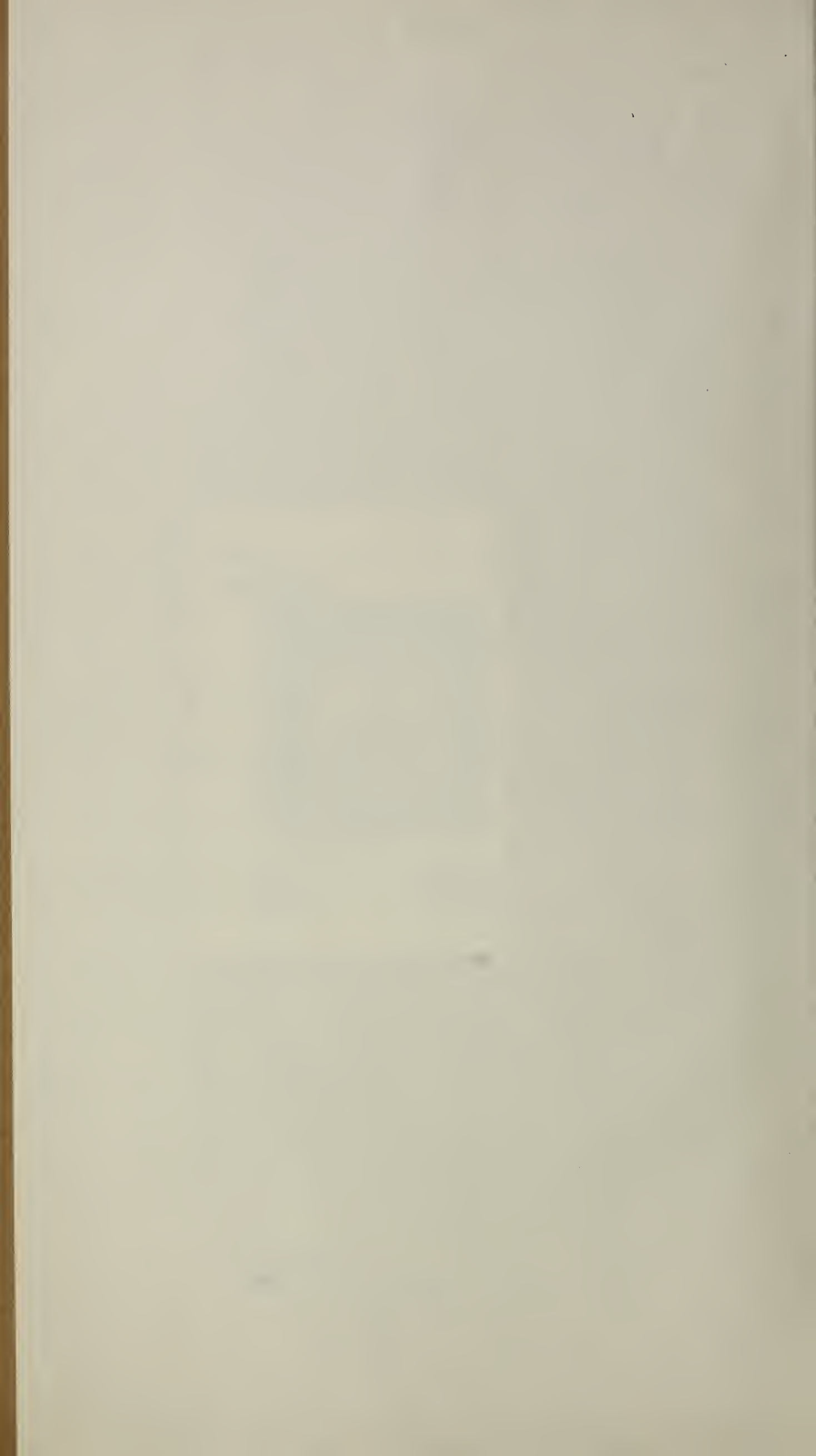
## I. SAMPLING METHOD AND REQUIREMENTS QUESTIONNAIRE

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## DEVELOPMENT OF THE QUESTIONNAIRE

The Systems Requirement Group was to make a study "To find out what it is the research people want and what system can produce it". More specifically its functions as outlined at the start of the project were to include (1) identify user groups (2) to visit agencies and Land Grant Colleges to get needs and potential benefits from an information retrieval system.

After a month spent in visiting related projects, reviewing the literature, and hearing about the experiences of others who were deeply involved in information retrieval projects, the task force had a better understanding of the complexities of information retrieval and the enormity of the assignment. It was decided that the objectives should be redefined so as to limit the scope to bring the assignment within a manageable size. The following objective and plan of work was set forth:

"The objective of the Task Force is to find economical and efficient ways of fulfilling the requirements of the U. S. Department of Agriculture for scientific and technical information. The Task Force will:

1. Conduct a sample survey of the research scientists in the Department of Agriculture to:
  - (a) Determine their needs for published information.
  - (b) Identify the sources and services through which these needs are currently met.
  - (c) Assess the adequacy of the sources and services so identified."

(Item 2 omitted as not pertinent to the questionnaire)

The questionnaire was selected as a means of gathering information rather than through interviews as first planned since about 3/4 of the research scientists are located in field offices throughout the Nation as well as in Foreign countries. The scientific research





worker was chosen as the population group because it is one of the most important user groups, it is definable, and the information problems of the scientific community is getting national attention.

A questionnaire was drafted by the Requirements group leader. Results of other surveys concerned with methods by which research workers find information were reviewed as a guide in designing this questionnaire. Consultation with a staff worker of the American Institute of Physics who had some experience in this type of survey was also fruitful.

Copies of the first draft of the questionnaire were distributed for criticism in a group meeting that included all members of the Task Force, administrators from all of the Divisions of the Library, as well as some one from the National Bureau of Standards, and a member of a firm making a special study of the Bibliography under a government contract.

As a result of the criticisms offered at the meeting, or later submitted in writing, it was decided that there were two distinct types of information being collected from the Department scientists and it could best be done through two separate questionnaires.

The first questionnaire to be developed was concerned with how the literature search is made, that is what are the sources used by the research workers to gain access to scientific and technical information. A related concern was the age of material that the scientist needed ready access to. This questionnaire design, and the sample survey plans were work out by a group composed of the two group leaders of the System Design and the Requirements groups, a Task Force member who is a statistician, and a staff member on detail from the National Bureau of Standards.

What was left of the first draft of the inquiry after the sources and age of material were pulled out became the contents





of the second questionnaire. This questionnaire was concerned with the library services available to the research worker and an evaluation of the principal tool which is the Bibliography of Agriculture. As a measuring device a comparison was made with Biological Abstracts.

The questions and form of both questionnaires were determined in the main by the diversified interest and geographic dispersion of the population group being measured. Although the population was restricted to research workers, the subject field of the research workers are of great variety. There were 51 different Civil Service GS series included and the special fields included economics, engineering, physics, chemistry, biology, and interdisciplinary sciences. Every section of the country as well as some foreign countries are represented in the field location. The facilities varied from (1) the field location that has no close library, (2) a location in a large University with very good collections in the scientists special field, or (3) a location in the D.C.-Beltsville area that offers outstanding facilities for access to world literature.

Both questionnaires were developed for the purpose of collecting data that would give a broad look at the research workers needs and problems in getting access to scientific and technical publications. It was believed that such a broad approach would show what library services could be developed that would benefit all researchers in the Department. This approach would also delineate the areas that needed specialized help or that would require a deeper study.

Both questionnaires were pretested by interviews with scientists selected at random from the population but located in the D.C.-Beltsville area. Further changes in questionnaire design were made on the basis of the pretest and after consultation with Department personnel experienced in questionnaire and survey design.



## SAMPLING PLAN

### The Population

Define the population --

The U.S. Department of Agriculture research scientists were selected as the finite group to be sampled. To specifically define the population group, the Civil Service class series codes were selected that included the word research in the definition of the series of classes established under the position-classification plan as published in the U.S. Civil Service Commission handbook. A list in numeric arrangement of the 51 series selected is shown in table SP-1

The research workers included in the population met the following criteria:

- (1) Research is included in the description of the Civil Service class series code -- the 51 series cited above.
- (2) The worker's division or section was designated by his agency as primarily for research
- (3) Grades 7 or above.

See Table SP-4

Collect the names --

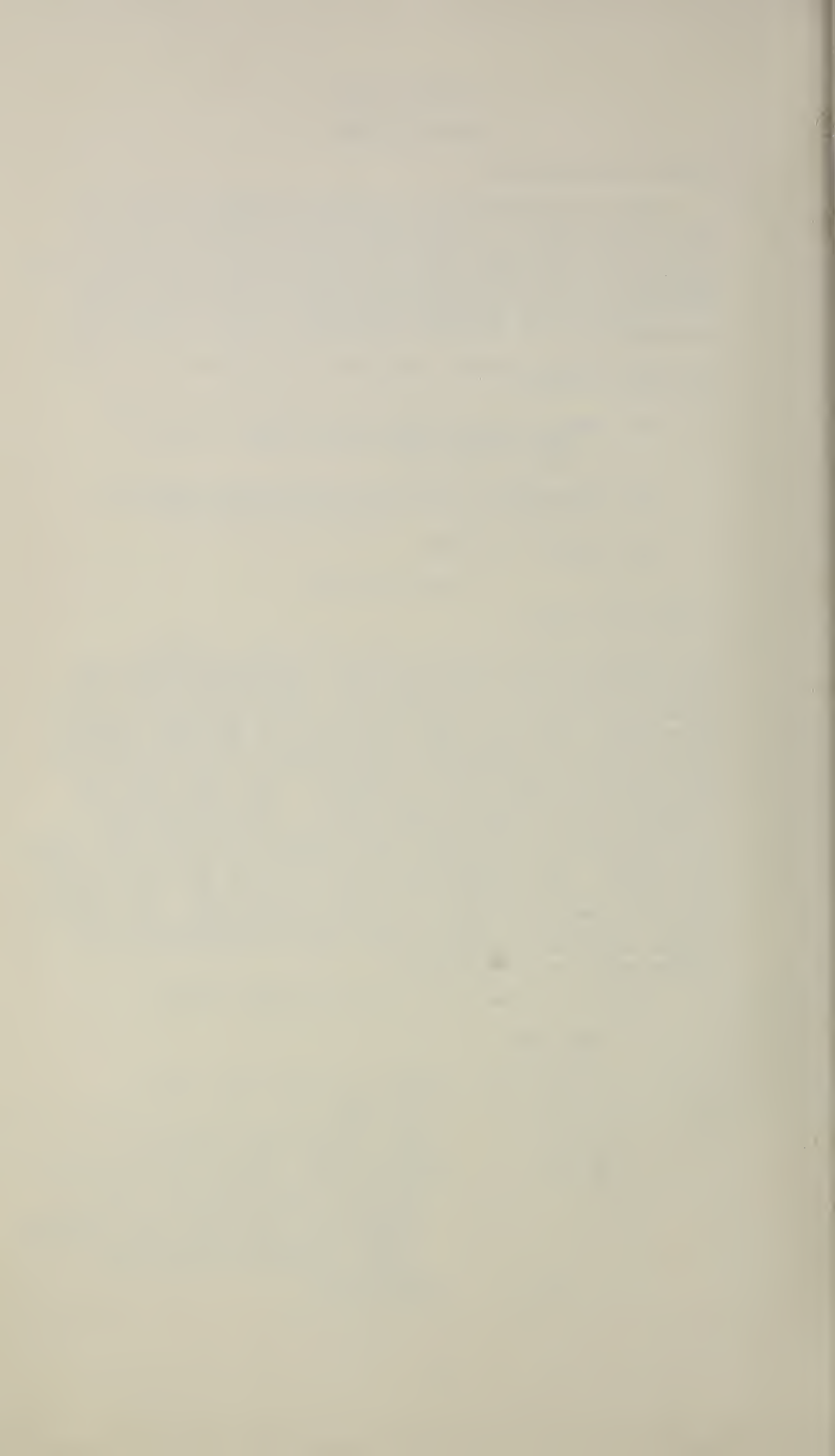
Agencies were asked to supply the name, location, Civil Service series code and grade, and annual salary rate excluding government contributions. About 60% of the total research workers were in Agriculture Research Service, and for this group a punch card and listing of the employees meeting the criteria were supplied by the Agency. The names for the Forest Service and Economic Research Service were copied from the Agency Records, with the members of the Agency and Task Force working together on the project. The other agencies compiled the list for the Task Force. The addresses were omitted from the population list because this information was not available on the record that showed class series code, grade and salary. The addresses were taken off for the sample names only so as to reduce the work load. A punch card was prepared for each research worker in the Population group. Since punch cards were made available for ARS research workers the ARS card format was used for punching the names and identification information for other agencies.

Punch card format for population names follows:

#### Card Col.

1 - 18	Name
19 - 41, 62-74,	Unrelated data in ARS cards
42 - 43	G.S. Grade
44 - 47	Class title code for Civil Service series
48 - 52	Annual salary rate, dollars
56 - 57	Division code (for ARS see attached No.3)
58 - 61	Headquarters location, State and city code (see ARS attachment number 3 - Budget and Finance Division, code designations for Budget and Personnel card). These codes were used for the headquarters for all agencies.
75	Agency codes.





CIVIL SERVICE POSITION CLASSIFICATION  
Series and Title  
for  
Series having the word Research in the description  
-----

Table SP-1

101 - Social Science	487 - Husbandry
110 - General Economics	490 - Agricultural Technology
111 - Business Economics	491 - Dairy Mfg. Technology
115 - Transportation Economics	493 - Home Economics
117 - Agricultural Economics	494 - Microanalysis
401 - Biology	703 - Veterinary
403 - Microbiology	801 - General Engineering (Research Engineering)
405 - Pharmacology	810 - Civil Engineering
410 - Zoology	813 - Hydraulic Engineering
412 - Parasitology	830 - Mechanical Engineering
413 - Physiology	850 - Electrical Engineering
414 - Entomology	855 - Electronic Engineering
415 - Nematology	861 - Aeronaut. Res. Engin.
420 - Bacteriology	880 - Mining Engineering
430 - Botany	890 - Agricultural Engineering in AMS, ARS, FS (others not included)
431 - Mycology	893 - Chemical Engineering
433 - Plant Taxonomy	1301 - Gen. Physical Science
434 - Plant Pathology	1310 - Physics
435 - Plant Physiology	1320 - Chemistry
437 - Horticulture	1350 - Geology
440 - Genetics	1380 - Forest Prod. Technician
454 - Range Conservation (Research)	1382 - Food Technician
460 - Forestry	1384 - Textile Technician
470 - Soil Science (Part 2-ARS,FS) (Exclude SCS)	1390 - Technology
471 - Agronomy	1529 - Mathematical Stat.
	1530 - Statistician





# NUMBER OF USDA RESEARCH SCIENTIST

Population by Civil Service class series code and location  
of scientist in field and D.C.-Beltsville Areas  
As of June 1962

Group	Civil Service Series Code GS	Number of Research Scientists		
		D.C. -		
		Field No.	Beltsville No.	Total No.
1	101-Social Science	2	15	17
	110-General Economics	-	4	4
	111-Business Economics	-	5	5
	115-Transportation Economics	1	13	14
	117-Agricultural Economics	134	366	500
	493-Home Economics	<u>2</u>	<u>81</u>	<u>83</u>
	Subtotal	139	484	623
2	414-Entomology	355	56	411
	415-Nematology	<u>18</u>	<u>6</u>	<u>24</u>
	Subtotal	373	62	435
3	420-Bacteriology	45	22	67
	430-Botany	10	13	23
	431-Mycology	4	4	8
	433-Plant Taxonomy	3	5	8
	434-Plant Pathology	186	41	227
	435-Plant Physiology	<u>83</u>	<u>42</u>	<u>125</u>
	Subtotal	331	127	458
4	437-Horticulture	52	32	84
	471-Agronomy	<u>198</u>	<u>26</u>	<u>224</u>
	Subtotal	250	58	308
5	454-Range Conservation	77	4	81
	460-Forestry	517	34	351
	1380-Forest Prod. Technician	<u>73</u>	<u>1</u>	<u>74</u>
	Subtotal	667	39	706
6	470-Soil Science	180	44	224
	1350-Geology	<u>9</u>	<u>-</u>	<u>9</u>
	Subtotal	189	44	233
7	801-General Engineering	46	4	50
	810-Civil Engineering	2	-	2
	830-Mechanical Engineering	22	6	28
	861-Aeronaut. Res. Engin.	1	-	1
	880-Mining Engineering	<u>1</u>	<u>-</u>	<u>1</u>
	Subtotal	72	10	82

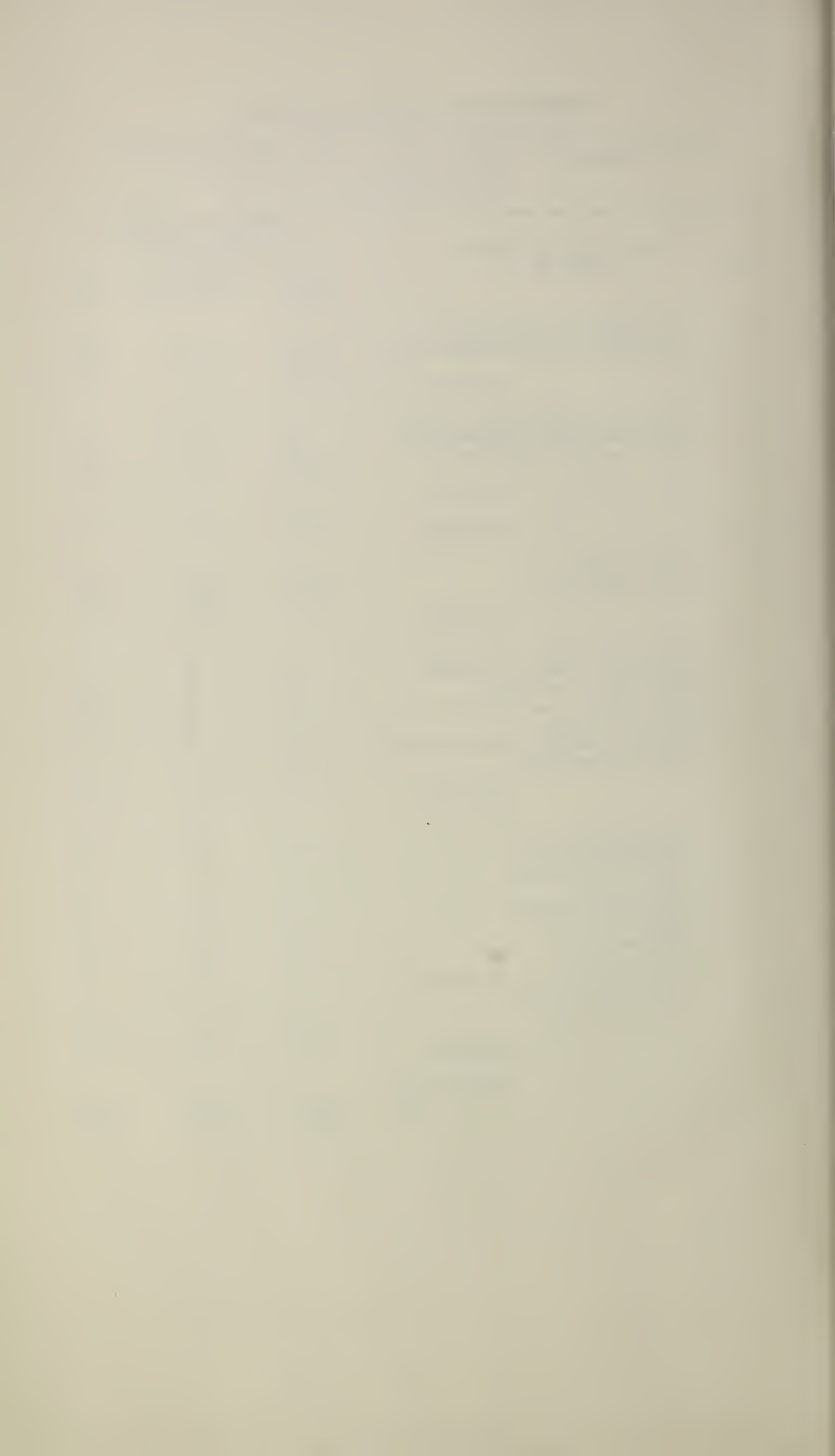


# NUMBER OF USDA RESEARCH SCIENTIST

Population by Civil Service class series code and location  
of scientist in field and D.C.-Beltsville Areas  
As of June 1962

Group	Civil Service Series Code GS	Number of Research Scientists		
		D.C.-		Total
		Field No.	Beltsville No.	
8	813-Hydraulic Engineering	41	5	46
	890-Agricultural Engineering	<u>187</u>	<u>35</u>	<u>222</u>
	Subtotal	228	40	268
9	850-Electrical Engineering	1	12	13
	855-Electronic Engineering	1	20	21
	893-Chemical Engineering	<u>88</u>	<u>-</u>	<u>88</u>
	Subtotal	90	32	122
7,8, & 9	Subtotal	390	82	472
10	1310-Physics	40	4	44
	1320-Chemistry	<u>684</u>	<u>148</u>	<u>832</u>
	Subtotal	724	152	876
11	491-Dairy Mfg. Technology	0	6	6
	1301-Gen. Physical Science	0	2	2
	1382-Food Technician	1	3	6
	1384-Textile Technician	12	4	16
	1390-Technology	35	8	43
	1529-Mathematical Statistician	1	1	1
	1530-Statistician	<u>0</u>	<u>1</u>	<u>1</u>
	Subtotal	49	27	76
12	401-Biology	5	12	17
	403-Microbiology	19	4	23
	405-Pharmacology	5	-	5
	410-Zoology	3	1	4
	412-Parasitology	20	26	46
	413-Physiology	1	4	5
	440-Genetics	79	10	89
	487-Husbandry	37	43	80
	490-Agricultural Technology	2	1	3
	494-Microanalysis	1	2	3
	703-Veterinary	<u>0</u>	<u>1</u>	<u>1</u>
	Subtotal	172	104	276
	Grand total			
	No.	3284	1179	4463
	%	73.6%	26.4%	100%





## USDA RESEARCH WORKERS

Number in population and number tabulated for each Inquiry  
by Discipline SP-2

Discipline		Number Tabulated and Percentages <sup>1/</sup>		
Code	Series <sup>2/</sup>	Population Number	Requirements Inquiry	Services Inquiry
1	Agricultural Economics, Home Economics, etc.	623	104 (17%)	95 (15%)
2	Entomology Nematology	435	77 (18%)	74 (17%)
3	Plant Pathology, " Physiology, Bacteriology, etc.	458	85 (19%)	91 (20%)
4	Agronomy Horticulture	308	55 (18%)	53 (17%)
5	Forestry, Range Conservation, Forest Products, Technicians	706	123 (17%)	113 (16%)
6	Soil Science, etc.	233	41 (18%)	41 (18%)
7,8, 9	Engineering: Agricultural, Chemical, General Hydraulic, Mechanical, etc.	472	80 (17%)	77 (16%)
10	Chemistry, Physics	876	161 (18%)	155 (18%)
11	Technology, etc.	76	13 (17%)	15 (20%)
12	Genetics, Husbandry, Parasitology	276	51 (18%)	50 (18%)
		<u>4463</u>	<u>790</u> (18%)	<u>764</u> (17%)

<sup>1/</sup> Number tabulated as a percentage of number in population.

<sup>2/</sup> The class series not named had a population of less than 25 workers; series listed in each group are in order of rank, with series with the largest number of workers named first.

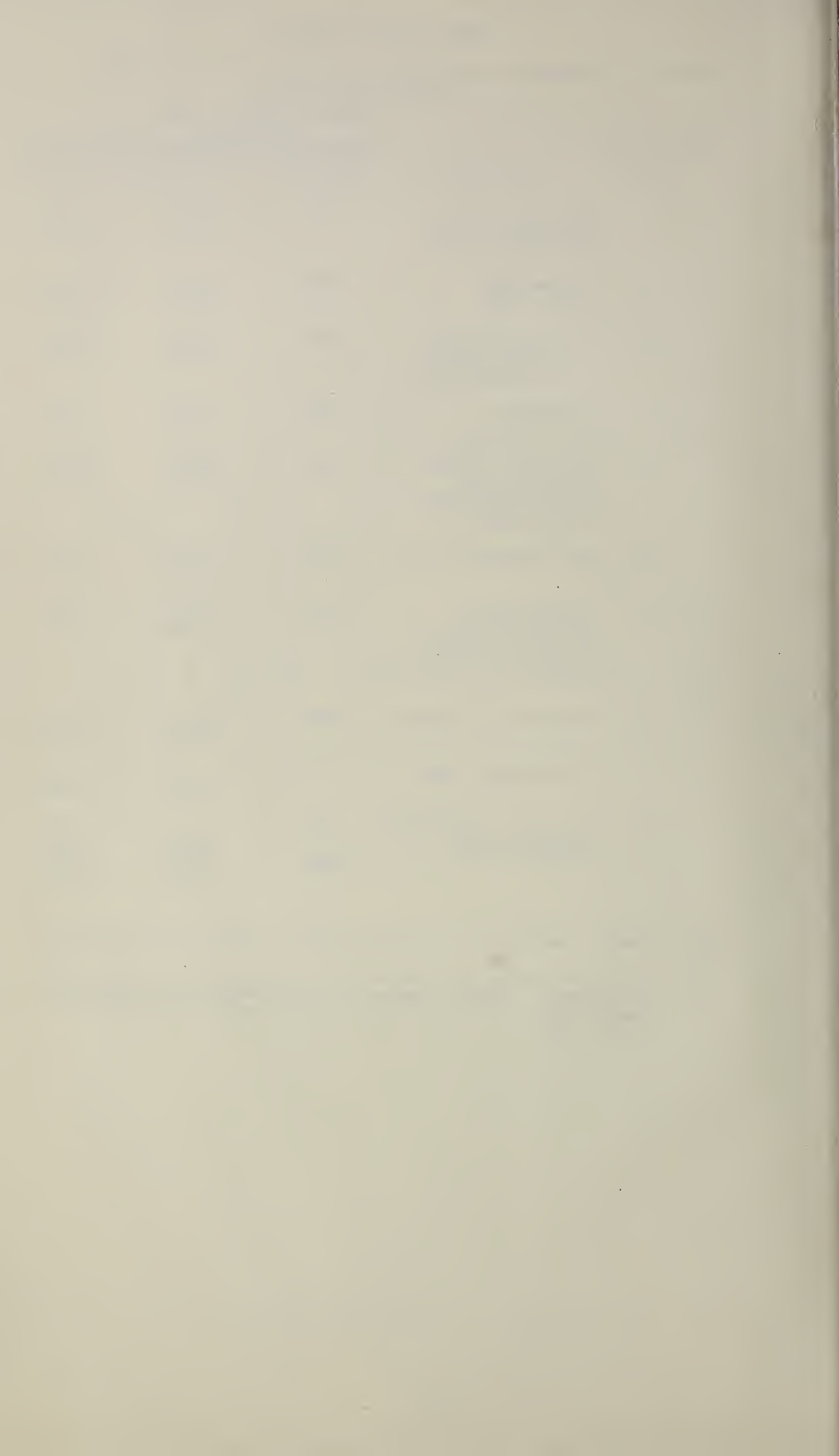




Table SP3: POPULATION (page 1 of 4)  
USDA RESEARCH PERSONNEL

by Civil Service Class Series and Grade  
Number of Workers

USDA RESEARCH PERSONNEL  
by Civil Service Class  
Series and Grade

		Number of Workers										Total
		Grades										
		7	9	11	Subtot.	13	15	16	17	18	19	
02	401-Social Science	2	3	3	8		3	1			9	17
	110-General Economics	1		1	2						2	4
	111-Business Economics		1		1	3					4	5
	115-Transportation Ec.	1	1	5	7	1		2			7	14
	117-Agricultural Ec.	18	50	107	175	124	70	5			325	500
	493-House Economics	17	17	17	51	11	9	3			32	83
	Subtotal	39	72	133	244	139	82	5			379	623
03	414-Entomology	28	73	131	232	98	27	4			179	411
	415-Nematology	1	7	10	18	5	1				6	24
	Subtotal	29	80	141	250	103	28	4			185	435
	420-Bacteriology	5	13	19	37	7	6				30	67
03	430-Botany		5	6	11	7	1				12	23
	431-Mycology			2	2	3					6	8
	433-Plant Taxonomy		3	2	5	1					3	8
	434-Plant Pathology	7	22	76	105	73	21	3			122	227
	435-Plant Physiology	2	7	37	46	44	13	3			79	125
	Subtotal	14	50	142	206	135	41	6			252	458
04	471-Agronomy	2	10	37	49	13	1	1			35	84
	Subtotal	12	32	57	101	70	19	2			123	224
	Subtotal	14	42	96	150	88	20	3			130	308



Table SP3: POPULATION (page 2 of 4)  
USDA RESEARCH PERSONNEL

by Civil Service Class Series and Grade  
Number of Workers

Class	Description	Grades 7-16										Grades 12 and Above					Subtot.	Total
		7	8	9	10	11	12	13	14	15	16							
05	400-Range Conservation	3	14	22	44	22	8	6	1								37	81
	400-Forestry	90	129	121	340	87	64	47	13								211	551
	1380-Forest Prod. Technician	8	19	14	41	12	11	9	1								33	74
	Subtotal	106	162	157	425	121	83	62	15								231	706
06	470-Soil Science	17	35	46	98	60	42	13	11								126	224
	1350 Geology	2	5		7	2											2	9
	Subtotal	19	40	46	105	62	42	13	11								128	233
07	801-General Engineering	4	6	10	20	15	10	5									30	50
	806-Materials Engineering						2										2	2
	810-Civil Engineering																	
	824-Bridge Engineering																	
	830-Mechanical Engineer.	2	5	10	17	6	4	1									11	28
	861-Aeronaut. Res. Engin.					1											1	1
	880-Mining Engineering					1											1	1
	Subtotal	6	11	20	37	23	16	6									45	82
08	813-Hydraulic Engineering		6	14	20	9	8	8	1								26	46
	890-Agricultural Engin.	30	28	55	113	57	32	17	3								109	222
	Subtotal	30	34	69	133	66	40	25	4								135	268
09	850-Electrical Engineering			1	1	2	4	5	1								12	13
	850-Electronic Engineering		4	2	6		10	4	1								15	21
	850-Mechanical Engineering	7	8	22	37	21	21	3	1								51	88
	Subtotal	7	12	25	44	23	35	11	3								78	122





Table SP3: POPULATION (page 3 of 4)  
USDA RESEARCH PERSONNEL

by Civil Service Class Series and Grade  
Number of Workers

Group	Field	Des 7-11							Des 12 and Above							Subtot.	Total
		7	9	11	Subtot.				13	14	15	16					
10	440-Biology	6	5	11	22	12	5	3	2							22	44
	440-Biology	104	155	159	418	183	139	66	26							414	832
	Subtotal	110	160	170	440	195	144	69	28							436	876
	491-Dairy Mfg. Technology	1	1		2	1	2	1								4	6
11	1301-Gen. Physical Science															2	2
	1332-Food Technician	1	1	3	5	1										1	6
	1334-Textile Technician	2	2	3	7	5	3	1								9	16
	1350-Technology	5	5	12	22	6	4	9	2							21	43
	1529-Mathematical Stat.		1		1		1									1	2
	1530-Statistician			1	1												1
	Subtotal	9	10	19	38	13	10	12	3							38	76
12	401-Biology	6	3	4	13	2	1		1							4	17
	403-Microbiology		2	3	5	9	2	6	1							18	23
	405-Pharmacology		1		1	1	1	1	1							4	5
	410-Zoology		1	1	2	1		1								2	4
	412-Parasitology	3	2	11	16	15	8	7								30	46
	413-Physiology			2	2	2		1								3	5
	440-Genetics	1	8	24	33	32	15	8	1							56	89
	Subtotal	15	12	21	48	18	12	1	1							32	80
	490-Agricultural Technology (etc.)	1	1		3												3



Table SP3: POPULATION (page 4 of 4)  
USDA RESEARCH PERSONNEL

by Civil Service Class Series and Grade  
Number of Workers

Class Series	Grades 7-11				Grades 12 and Above					Subtot.	Total
	7	9	11	Subtot.	12	13	14	15	16		
12 (cont.)											
494-Microanalysis		1	1	2	1					1	3
703-Veterinary						1				1	1
Subtotal	27	31	67	125	81	40	25	5		151	276

Grand Total

2,197

2,266

4,463





(See Table ~~SP-5~~ for key to identification codes)

### The Sample

#### Select Sample --

A stratified sample was selected by arranging the population names by the 51 class series and selecting every nth name beginning with a random number. Punch cards for the 4463 names in the population were sorted into the 51 Civil Service class series codes and alphabetized within each series code (agency disregarded).

To utilize EAM equipment to draw the sample the cards were then divided into two groups by selecting every other card. Sample #1 for the Requirements Inquiry on Information Sources was drawn from one group by selecting every other card. It was necessary to eliminate every nth card to bring the sample number below 1,000, as this was the number of questionnaires printed, thus a sampling ratio of about 1/5 was finally selected.

In the same way Sample #2 for the Library Services questionnaire was selected from Group Number 2, thus there was no opportunity for a duplication of names in the two samples.

#### Prepare Mailing Name Labels --

Punch cards for each sample were machine sorted by the code for town (col.60-61), State (col.58-59), Division (col.57), Agency (col.75) and machine listed with names spread out so that addresses were added to this list. This sort put the names back into order by Agency and Division so that addresses could be copied from Agency records. It should be noted that for Forest Service employees the area headquarters were entered by each name rather than field location. The sealed envelopes addressed to each employee were then forwarded by the Forest Service in bulk to the area headquarters and redistributed to field location. This is in contrast to direct mailing by Library Task Force for other agencies. Individual addresses for Forest Service employees were not easily available from Washington, D.C. records, so that distribution from area headquarters was the simplest method.

Address labels were placed on the inquiry in a position for window envelope mailing. Additional identification codes were entered on the address label as shown on Table SP-6.

The number assigned to each correspondent (col.1-3) was used in place of name for all punched card data. The area code distinguished between Field employees (coded "0") and Washington, D.C. and Beltsville area employees, (coded "1").

All survey data were summarized for each of the two areas.

The 12 job classification groups shown in Table SP-2 were based on a grouping of similar series codes so as to reduce the number of groups from 51 to 12 discipline groups for analysis purposes.

All data were summarized for each of the 12 groups altho the Engineering groups 7, 8 and 9 were combined for much of the analysis, thus reducing the number of discipline groups to 10.



The G.S. Grade was entered on the inquiry by each respondent. These were then coded, "0" for grades 7 through 11, and referred to as Junior Scientists, and "1" for grades 12 or above and referred to as Senior Scientists. All data were summarized for each of these groups.

Thus the questionnaire for each research worker contained the control information which was used throughout the analysis. The control data permitted a sort by -

Area (2 areas)  
 Job classification (10 disciplines)  
 G.S. grade (junior group and senior group)

Mail the questionnaires --

#### Requirements:

Questionnaire #1 was the Inquiry on Requirements of USDA Research Workers for Access to Scientific and Technical Publications. Enclosed with this Inquiry was the Specialties List used by the National Science Foundation to maintain the National Register of Scientific and Technical Personnel. This list was an integral part of the survey. The only identification that was entered on the Specialties List was the Employee Identification Number, which was posted to the list before mailing. For analysis purpose this permitted the transfer of control information from the punched card for the Inquiry data to the punched card for the Specialties List data (EAM equipment).

The 936 questionnaires and specialty lists were mailed August 19. A mimeograph letter signed by the Agency head (see Exhibit I) and a return envelope addressed to the National Agricultural Library were also enclosed.

About September 20 a reminder letter signed by the Head of the Library Task Force was mailed to 370 research workers who had failed to return the questionnaire (see Exhibit II).

#### Library Services:

The mailing procedures for the Library Services Inquiry was the same as for the Requirements Inquiry, except there was no Specialties List enclosed. Each correspondent received the questionnaire, a mimeographed letter from the head of the Agency (same letter was used for both inquiries) and a return envelope. There were 916 inquiries mailed on September 6, 1962, and a follow-up reminder on October 4, 1962, to 450 names.

(See Exhibit III.)





## THE SURVEY

## Response Rate

The letter from the Agency head urging cooperation and the reminder letter to delinquents from the Library Task Force head brought in an excellent response.

There was an 84.4% response to the Requirements Inquiry, with 790 reports summarized out of the 936 mailed. The response rate to the Services Inquiry was almost as high at 83.4% with 764 reports summarized out of a total of 916. This is outstanding cooperation considering the Services Inquiry was a 4 page detailed questionnaire.

EXHIBIT #1

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Washington 25, D. C.

August 19, 1962

To: Research Personnel, Agricultural Research Service

From: B. T. Shaw, Administrator

Subject: Need for scientific information

ts

The National Agricultural Library Task Force, a group of USDA employees representing several agencies, is studying the needs of research workers for scientific and technical information.

I urge you to cooperate with the Task Force and to give full and careful consideration to the questionnaire being circulated along with this memorandum. The Task Force's sample survey presents an opportunity for you to make known your own needs for information services.

*B. T. Shaw*



## THE SURVEY

## Response Rate

The letter from the Agency head urging cooperation and the reminder letter to delinquents from the Library Task Force head brought in an excellent response.

There was an 84.4% response to the Requirements Inquiry, with 790 reports summarized out of the 936 mailed. The response rate to the Services Inquiry was almost as high at 83.4% with 764 reports summarized out of a total of 916. This is outstanding cooperation considering the Services Inquiry was a 4 page detailed questionnaire.

EXHIBIT #III

EXHIBIT #II

National Agricultural Library  
Washington 25, D. C.

To: Research Personnel  
U. S. Department of Agriculture

From: Earl Hoisington  
Head of Library Task Force

*Earl Hoisington*

ts

Subject: Inquiry on Requirements of USDA Research Workers

The National Agricultural Library Task Force is trying to determine how U. S. Department of Agriculture Scientists keep informed on research progress in their respective scientific fields. To measure this a questionnaire was recently mailed to you as one of a random sample of research workers in the Department. An inquiry has not yet been received from you. If you have not already mailed the report, I would appreciate your cooperation in filling in the form and mailing it to:

U. S. Dept. of Agriculture  
National Agricultural Library  
Washington 25, D. C.





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----- Date -----  
EXHIBIT #III

National Agricultural Library  
Washington 25, D. C.

October 1, 1962

To: Research Personnel  
U. S. Department of Agriculture

From: Earl Hoisington  
Head of Library Task Force

Subject: Inquiry on Library Services  
provided USDA Research Workers

*Earl Hoisington*

.ts

The National Agricultural Library Task Force is trying to assess the role that libraries play in getting information to U. S. Department of Agriculture Scientists to keep them informed on research progress in their respective scientific fields. To measure this a questionnaire was recently mailed to you as one of a random sample of research workers in the Department. An inquiry has not yet been received from you. If you have not already mailed the report, I would appreciate your cooperation in filling in the form and mailing it to:

U. S. Dept. of Agriculture  
National Agricultural Library  
Washington 25, D. C.



THE SURVEY

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	Response Rate		
	Requirements Inquiry	Specialties List	Services Inquiry
Number mailed	936	936	916
Number tabulated	790 1/	763 1/	764
Percent response	84.4%	81.5%	83.4%

- 1/ 756 returned both the Requirements and the Specialties List  
7 returned only the Specialties List  
27 returned only the Requirements questionnaire

Respondents by Discipline, Grade and Area

For detailed information about respondents by Grade and Area for each discipline group see Table SP7 for the Requirements Inquiry and Table SP8 for the Services Inquiry.

Discipline --

The 10 discipline groups are represented in about the same proportion in the two surveys.

Table SP2 compares the two inquiries for the relationship of the number tabulated as a percentage of the number in the population by discipline groups. This percentage ranges from 15 to 20 percent with most groups showing 17 or 18 percent which is the same as the total for all disciplines.





Grade and Area --

The Junior grade (7-11) and Senior grade (12 and above) research workers are represented in about the same proportion in the two surveys. In the Requirements Survey the Junior grade research workers accounted for 46 percent of the total compared with 45 percent for the Services Inquiry. However, in the Population the Junior grades accounted for 49 percent of the total research workers. One explanation may be that the new employees are more apt to be in the entrance grade of 7. It was evident from some of the comments that the new employee did not feel he had enough experience to be able to meaningfully answer the questions. In some cases the assignments were not yet of the level to require extensive library use.

The Field employees were represented in about the same proportion in the two surveys -- 77 percent of the workers in the Requirements Inquiry and 76 percent in the Services Inquiry were employed outside of the D.C. and Beltsville area.

Respondents -- Requirements and Services Inquiries, by Grade and Area

By Grade:	Percent of Total Number Tabulated		
	Population	Requirements Inquiry	Services Inquiry
<u>Junior</u>	49	46	45
In Field		37	37
D.C. & Beltsville		9	8
<u>Senior</u>	51	54	55
In Field		40	39
D.C. & Beltsville		14	16
		<u>100</u>	<u>100</u>
By Area:			
Field		77	76
D.C. & Beltsville		23	24
	<u>100</u>	<u>100</u>	<u>100</u>



SCHEME FOR IDENTIFICATION CODES USED IN PUNCH CARDS  
FOR QUESTIONNAIRES  
TABLE SP 4 page 1

State and City

		Col.56-57	Col.58-61	Col.75
		Division	Head-qtrs. State and City	Agency
AMS	-- AGRICULTURAL MARKETING SERVICE			
	Market Quality Research Div.	01	99 01	1
	Transportation & Facilities Div.	02	99 02 ( & others)	1
ARS	-- AGRICULTURAL RESEARCH SERVICE			blank or 2
ERS	-- ECONOMIC RESEARCH SERVICE			
	ODA Admin.	01		3
	E & SAD Economic & Stat. Analysis	02		3
	D & TAD Development & Trade Analysis	03		3
	FED Farm Economics	04		3
	MED Marketing Economics	05		3
	RAD Regional Analysis	06		3
FS	-- FOREST SERVICE			
	Forest Research Division:			
	Washington, D.C.	06	99 06	6
	N.E. Forest Exp.Station, Upper Darby, Pa.,	06	78 20	6
	Lab.States Forest Exp.Stn. St. Paul, Minn.	06	53 43	6
	Southern For.Exp.Stn., New Orleans,La.	06	47 21	6
	Pacific SW Forest & Range Exp. Station, Berkley,Cal.	06	25 01	6
	Forest Products Laboratory Madison, Wisc.	06	95 23	6
	S.E.Forest Exp. Station Ashville, N.C.	06	70 01	6
	Intermt. Forest & Range Exp. Station Ogden, Utah	06	87 02	6
	Tropical Forest Research Center, Rio Piedras Puerto Rico	06	12 01	6
	Central States Forest Exp. Station, Columbus, Ohio	06	73 33	6
	Pacific N.W. Forest & Range Exp. Station, Portland,Ore.	06	77 31	6
	Alaska Forest Research Club Juneau, Alaska	06	21 16	6
	Rocky Mountain Forest & Range Exp. Stn. Fort Calling,Col.	06	27 20	6
FAS	-- FOREIGN AGRICULTURAL SERVICE	01	99 01	4





SCHEME FOR IDENTIFICATION CODES IN PUNCH CARDS FOR  
QUESTIONNAIRES - (cont.)

TABLE SP 4 page 2

		Col.56-57	Col.58-61	Col.75
		Division	Headqtrs. State and City	Agency
FCS	-- FARMERS COOPERATIVE SERVICE			
	Management Services Div.	01	99 01	5
	Marketing Div.	02	99 02	5
	Purchasing Div.	03	99 03	5
	Administration	04	99 04	5
SCS	-- SOIL CONSERVATION SERVICE			
	West D.C.	08	99 08	8
	Beltsville	08	49 15	8
SRS	-- STATISTICAL REPORTING SERVICE			
	Washington, D.C.	09	99 09	9

NOTE: Washington, D.C. Headquarters  
Coded 99 for State and  
Division Code used for City



TABLE SP 5  
LIBRARY TASK FORCE

Identification Code for Punch Cards for Inquiries #1 and #2

Card Column	Name Label					On Inquiry Line 1	
	1-3	4	5	6-7	8-11	12	13-14
	Ident.of Name on Sticker	Agency	Area	Job Class Group	Civ.Serv. Title Code	Class Assign- ment	Civil Service Grade
Variations	001	1	0 <u>1</u> /	01	XXXX	0	7 to 11
"	945	9	1 <u>2</u> /	12	XXXX	1	12 & over

1/ -- Outside of D.C. and Beltsville

2/ -- D.C. and Beltsville

Sorting scheme for summarizing data:

<u>Minor</u>	GS Grade	Column 14, 13, 12
<u>Intermediate</u>	Job Classif.	" 11, 10, 9,8,7,6
<u>Major</u>	Area	" 5





TABLE SP 6  
CODE FOR INFORMATION PLACED ON NAME LABEL  
-----

<u>Col.</u>	<u>Code Explanation</u>
1 - 3	Numeric identification of correspondent (numbered consecutively from 001 to 936)
4	Agency code
5	"0" if employee located in field, that is outside West D.C. or Beltsville, Md. area <i>Wash</i>
	"1" if employee in <i>Wash.</i> West D.C. or Beltsville, Md.
6 - 7	Group Code numbered from 01 to 12 for Civil Service series codes See table <u>SP 3</u> for group scheme
8 - 11	Civil Service series codes (basis for group codes shown in col. 6, 7)

USDA RESEARCH WORKERS, BY AGENCY  
-----

AGENCY		POPULATION	SAMPLE NO. 1 REQUIREMENTS INQUIRY	SAMPLE NO.2 SERVICES INQUIRY
Code	Name	No.	Number mailed	Number mailed
1	AMS	173	35	40
2	ARS	2702	562	565
3	ERS	404	82	79
4	FAS	58	16	12
5	FCS	44	11	14
6	FS	1026	225	202
7	REA	32	omitted	omitted
8	SCS	15	2	1
9	SRS	<u>9</u>	<u>3</u>	<u>3</u>
		4463	936	916



TABLE SP 6  
CODE FOR INFORMATION PLACED ON NAME LABEL  
-----

<u>Col.</u>	<u>Code Explanation</u>
1 - 3	Numeric identification of correspondent (numbered consecutively from 001 to 936)
4	Agency code
5	"O" if employee located in field, that is outside <del>West</del> D.C. or Beltsville, Md. area <i>Wash</i>
	"1" if employee in <del>West</del> D.C. or Beltsville, Md. <i>Wash.</i>
6 - 7	Group Code numbered from 01 to 12 for Civil Service series codes See table <u>SP3</u> for group scheme
8 - 11	Civil Service series codes (basis for group codes shown in col. 6, 7)



PUNCHING INSTRUCTIONS  
For Requirements Inquiry  
-----

Column

1 - 14	Identification on page 1
15- 20	Blank
21	1 or question number
22 - n	a - z -- Punch the alpha for each checked item Example: Col. 21 22 23 24 25 1 a d g h
n + 1	2 for question number 2

If no checks entered for a question punch the question number and proceed to the next question.

A second card may be required if data exceeds the first card.

IMPORTANT

When you are near the end of a card be sure that all of the alpha for a particular card will go on the first card before you start punching the question.

If a question will extend into a second card go to card number 2 before punching the question number.

When 2 cards are required for one questionnaire punch

column 80 as follows:

1 for card #1

2 for continuation card #2.





Inquiry on Requirements of USDA Research Workers for Access  
to Scientific and Technical Publications

TABLE SP 7

Respondents -

There were 790 questionnaires tabulated out of a total of 916 mailed. In the following table is shown the number of respondents according to grade, job classification and location. Grades 7 through 11 have been combined as a junior grade classification and grade 12 and above as a senior grade. The job classifications have been grouped into 10 classes. For the detail of the Civil Service title codes included in each group see page

RESPONDENTS

Number according to grade, area, and job classification

Job Class Group	Junior Grade G.S. 7-11			Senior Grade G.S. 12 & over			Total all Grades		
	Field	D.C.&	Total	Field	D.C.&	Total	Field	D.C.&	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1	11	30	41	10	53	63	21	83	104
2	36	3	39	33	5	38	69	8	77
3	30	9	39	33	13	46	63	22	85
4	22	1	23	28	4	32	50	5	55
5	57	3	60	59	4	63	116	7	123
6	15	1	16	23	2	25	38	3	41
7,8,9	40	3	43	34	3	37	74	6	80
10	62	14	76	72	13	85	134	27	161
11	3	1	4	6	3	9	9	4	13
12	15	8	23	17	11	28	32	19	51
<u>Total</u>	291	73	364	315	111	426	606	184	790



INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS FOR ACCESS TO  
SCIENTIFIC AND TECHNICAL PUBLICATIONS

August 1962

If your name and address, as given  
at left, are incomplete or incorrect,  
please indicate corrections here:

\_\_\_\_\_  
\_\_\_\_\_

**NOTE:** All information identifying you or your participation in this survey is regarded as confidential. It will be used for statistical purposes only. The fact that you participated will not be divulged or released in any way that might allow identification of you, of your office, or of your projects.

USDA Agency: \_\_\_\_\_ GS Grade: \_\_\_\_\_

Civil Service Job Title: \_\_\_\_\_

Short description of your principal duties in USDA: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How long have you been carrying on these duties?..... (years)

.....

This questionnaire is intended to measure your professional requirements for published information and your problems in obtaining it. You are asked to indicate your fields of interest and to identify the sources you use to gain access to information in those fields of interest.

Your Fields of Interest

Enclosed is a copy of the Specialties List used by the National Science Foundation in maintaining the National Register of Scientific and Technical Personnel. You may have used a similar list if you submitted a National Register Questionnaire specifying the areas of your professional competence. The areas with which the present survey is concerned are not necessarily those of your professional competence, but those in which you need and use published scientific and technical information.

Instructions in this section of the questionnaire refer to the accompanying Specialties List. Read through the following instructions and observe the example before marking the List.

**Instructions:** Review the list. Select those specialty titles describing fields in which subject matter, methods, or other information is important to you. For each specialty title selected:

1. Circle the corresponding code number on the List;
2. If your primary interest is for methods, procedures, or techniques, write the letter, "M", before the circled code number;
3. Estimate the time in years when most information important to you is of historical rather than current interest. To the left of the circled code number (and the letter "M" if used) write that time in years from initial publication date.

Example:

2	M	(7802)	Physiology Reproduction
50		(8X06)	Zoology Parasitology
25		(8503)	Animal Husbandry Small Animal

Now please mark the Specialties List in accordance with the instructions. Mark as many fields as you think important.



## Information Sources

A list of potential sources of information appears after several of the questions in this section. The same list is used each time. Indicate your answers to each of these questions by marking one or more entries in the corresponding list. The source list is not exhaustive and some items may overlap or may not apply to all given questions. If in doubt, please mark all items which may be applicable in any given case.

### 1. Which sources are or have been available to you and have you used most?

- |   |  |  |
|---|--|--|
| <p>a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings)</p> <p>b <input type="checkbox"/> Conversations with colleagues</p> <p>c <input type="checkbox"/> Browsing in old or out-dated literature</p> <p>d <input type="checkbox"/> Preparation of invited papers or speeches</p> <p>e <input type="checkbox"/> Personal files, notes, or reference lists</p> <p>f <input type="checkbox"/> Library acquisition list</p> <p>g <input type="checkbox"/> Recent issues of journals or periodicals</p> | <p>h <input type="checkbox"/> Published indexes or catalogs</p> <p>i <input type="checkbox"/> Memory or previous use</p> <p>j <input type="checkbox"/> By chance or accident (as while looking for something else)</p> <p>k <input type="checkbox"/> Abstracting journals or services</p> <p>l <input type="checkbox"/> Personal or professional activities outside USDA</p> <p>m <input type="checkbox"/> Routing and distribution of current literature</p> <p>n <input type="checkbox"/> Your other work or problems</p> <p>o <input type="checkbox"/> Review and historical articles</p> <p>p <input type="checkbox"/> Attendance at scientific and technical meetings</p> | <p>q <input type="checkbox"/> Office or agency reference files or reference services</p> <p>r <input type="checkbox"/> Bibliographies and reference lists</p> <p>s <input type="checkbox"/> Library card catalogs</p> <p>t <input type="checkbox"/> Library reference services</p> <p>u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals</p> <p>v <input type="checkbox"/> Browsing in library</p> <p>w <input type="checkbox"/> Counsel or advice of superiors</p> <p>x <input type="checkbox"/> Standard reference books, texts, or handbooks</p> <p>y <input type="checkbox"/> Periodic progress reports</p> <p>z <input type="checkbox"/> OTHER (specify) _____</p> |
|---|--|--|

### 2. Through which sources have you found ideas for new projects or investigations?

- |   |  |  |
|---|--|--|
| <p>a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings)</p> <p>b <input type="checkbox"/> Conversations with colleagues</p> <p>c <input type="checkbox"/> Browsing in old or out-dated literature</p> <p>d <input type="checkbox"/> Preparation of invited papers or speeches</p> <p>e <input type="checkbox"/> Personal files, notes, or reference lists</p> <p>f <input type="checkbox"/> Library acquisition list</p> <p>g <input type="checkbox"/> Recent issues of journals or periodicals</p> | <p>h <input type="checkbox"/> Published indexes or catalogs</p> <p>i <input type="checkbox"/> Memory or previous use</p> <p>j <input type="checkbox"/> By chance or accident (as while looking for something else)</p> <p>k <input type="checkbox"/> Abstracting journals or services</p> <p>l <input type="checkbox"/> Personal or professional activities outside USDA</p> <p>m <input type="checkbox"/> Routing and distribution of current literature</p> <p>n <input type="checkbox"/> Your other work or problems</p> <p>o <input type="checkbox"/> Review and historical articles</p> <p>p <input type="checkbox"/> Attendance at scientific and technical meetings</p> | <p>q <input type="checkbox"/> Office or agency reference files or reference services</p> <p>r <input type="checkbox"/> Bibliographies and reference lists</p> <p>s <input type="checkbox"/> Library card catalogs</p> <p>t <input type="checkbox"/> Library reference services</p> <p>u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals</p> <p>v <input type="checkbox"/> Browsing in library</p> <p>w <input type="checkbox"/> Counsel or advice of superiors</p> <p>x <input type="checkbox"/> Standard reference books, texts, or handbooks</p> <p>y <input type="checkbox"/> Periodic progress reports</p> <p>z <input type="checkbox"/> OTHER (specify) _____</p> |
|---|--|--|

### 3. What sources have been most useful to you when beginning a retrospective search for information pertinent to a project or subject area?

- |   |  |  |
|---|--|--|
| <p>a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings)</p> <p>b <input type="checkbox"/> Conversations with colleagues</p> <p>c <input type="checkbox"/> Browsing in old or out-dated literature</p> <p>d <input type="checkbox"/> Preparation of invited papers or speeches</p> <p>e <input type="checkbox"/> Personal files, notes, or reference lists</p> <p>f <input type="checkbox"/> Library acquisition list</p> <p>g <input type="checkbox"/> Recent issues of journals or periodicals</p> | <p>h <input type="checkbox"/> Published indexes or catalogs</p> <p>i <input type="checkbox"/> Memory or previous use</p> <p>j <input type="checkbox"/> By chance or accident (as while looking for something else)</p> <p>k <input type="checkbox"/> Abstracting journals or services</p> <p>l <input type="checkbox"/> Personal or professional activities outside USDA</p> <p>m <input type="checkbox"/> Routing and distribution of current literature</p> <p>n <input type="checkbox"/> Your other work or problems</p> <p>o <input type="checkbox"/> Review and historical articles</p> <p>p <input type="checkbox"/> Attendance at scientific and technical meetings</p> | <p>q <input type="checkbox"/> Office or agency reference files or reference services</p> <p>r <input type="checkbox"/> Bibliographies and reference lists</p> <p>s <input type="checkbox"/> Library card catalogs</p> <p>t <input type="checkbox"/> Library reference services</p> <p>u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals</p> <p>v <input type="checkbox"/> Browsing in library</p> <p>w <input type="checkbox"/> Counsel or advice of superiors</p> <p>x <input type="checkbox"/> Standard reference books, texts, or handbooks</p> <p>y <input type="checkbox"/> Periodic progress reports</p> <p>z <input type="checkbox"/> OTHER (specify) _____</p> |
|---|--|--|

### 4. What sources have led you to new and useful information about methods, techniques or procedures?

- |   |  |  |
|---|--|--|
| <p>a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings)</p> <p>b <input type="checkbox"/> Conversations with colleagues</p> <p>c <input type="checkbox"/> Browsing in old or out-dated literature</p> <p>d <input type="checkbox"/> Preparation of invited papers or speeches</p> <p>e <input type="checkbox"/> Personal files, notes, or reference lists</p> <p>f <input type="checkbox"/> Library acquisition list</p> <p>g <input type="checkbox"/> Recent issues of journals or periodicals</p> | <p>h <input type="checkbox"/> Published indexes or catalogs</p> <p>i <input type="checkbox"/> Memory or previous use</p> <p>j <input type="checkbox"/> By chance or accident (as while looking for something else)</p> <p>k <input type="checkbox"/> Abstracting journals or services</p> <p>l <input type="checkbox"/> Personal or professional activities outside USDA</p> <p>m <input type="checkbox"/> Routing and distribution of current literature</p> <p>n <input type="checkbox"/> Your other work or problems</p> <p>o <input type="checkbox"/> Review and historical articles</p> <p>p <input type="checkbox"/> Attendance at scientific and technical meetings</p> | <p>q <input type="checkbox"/> Office or agency reference files or reference services</p> <p>r <input type="checkbox"/> Bibliographies and reference lists</p> <p>s <input type="checkbox"/> Library card catalogs</p> <p>t <input type="checkbox"/> Library reference services</p> <p>u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals</p> <p>v <input type="checkbox"/> Browsing in library</p> <p>w <input type="checkbox"/> Counsel or advice of superiors</p> <p>x <input type="checkbox"/> Standard reference books, texts, or handbooks</p> <p>y <input type="checkbox"/> Periodic progress reports</p> <p>z <input type="checkbox"/> OTHER (specify) _____</p> |
|---|--|--|



5. What sources have led you to information in previously unfamiliar subject areas?

- |  |  |   |
|--|--|---|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference files or reference services               |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                   |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs  |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services   |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library  |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                       |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts, or handbooks                        |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports  |
|  |  | z <input type="checkbox"/> OTHER (specify) _____  |

6. What sources have helped you to find useful historical material?

- |  |  |   |
|--|--|---|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference files or reference services               |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                   |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs  |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services   |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library  |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                       |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts, or handbooks                        |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports  |
|  |  | z <input type="checkbox"/> OTHER (specify) _____  |

7. In cases you can recall, through what sources have you found out about work of other scientists pertinent to your own research before their results were published?

- |  |  |   |
|--|--|---|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference files or reference services               |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                   |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs  |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services   |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library  |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                       |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts, or handbooks                        |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports  |
|  |  | z <input type="checkbox"/> OTHER (specify) _____  |

8. About how much time seems to you to elapse between the time you find out about such work and the time results are published?

- |                                     |                                      |                                       |                                       |                                 |
|-------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------|
| 1-6 months <input type="checkbox"/> | 7-12 months <input type="checkbox"/> | 13-18 months <input type="checkbox"/> | 19-24 months <input type="checkbox"/> | longer <input type="checkbox"/> |
| a                                   | b                                    | c                                     | d                                     | e                               |

9. Upon which sources do you most rely for keeping currently abreast of scientific publications in your area of interest or research?

- |  |  |   |
|--|--|---|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference files or reference services               |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                   |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs  |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services   |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library  |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                       |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts, or handbooks                        |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports  |
|  |  | z <input type="checkbox"/> OTHER (specify) _____  |

10. Which sources (if any) have you tried to use but found to be of little value for finding information important to your research?

- |  |  |   |
|--|--|---|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference files or reference services               |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                   |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs  |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services   |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes to individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library  |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                       |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts, or handbooks                        |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports  |
|  |  | z <input type="checkbox"/> OTHER (specify) _____  |

#### Other Comments or Criticisms

Please note here or on an attached sheet any comments you wish to make regarding anything in this questionnaire.

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Your comments are invited on any phase of the problems in current awareness, retrospective searching, obtaining books, periodicals, etc., as related to library services.

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About how long did it take you to fill out this questionnaire? \_\_\_\_\_

Date you completed it \_\_\_\_\_

Return the questionnaire AND the specialties list in the enclosed pre-addressed envelope to:

National Agricultural Library  
U. S. Department of Agriculture  
Washington 25, D. C.  
Room 1424



# INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS FOR ACCESS TO SCIENTIFIC AND TECHNICAL PUBLICATIONS

August 1962

(For exact copy of questionnaire see Exhibit - IV)

## Information Sources

A list of potential sources of information appears after several of the questions in this section. The same list is used each time. Indicate your answers to each of these questions by marking one or more entries in the corresponding list. The source list is not exhaustive and some items may overlap or may not apply to all given questions. If in doubt, please mark all items which may be applicable in any given case.

## QUESTIONS

1. Which sources are or have been available to you and have you used most?  
\_\_\_\_\_
2. Through which sources have you found ideas for new projects or investigations?  
\_\_\_\_\_
3. What sources have been most useful to you when beginning a retrospective search for information pertinent to a project or subject area?  
\_\_\_\_\_
4. What sources have led you to new and useful information about methods, techniques or procedures?  
\_\_\_\_\_
5. What sources have led you to information in previously unfamiliar subject areas?  
\_\_\_\_\_
6. What sources have helped you to find useful historical material?  
\_\_\_\_\_
7. In cases you can recall, through what sources have you found out about work of other scientists pertinent to your own research before their results were published?  
\_\_\_\_\_
8. About how much time seems to you to elapse between the time you find out about such work and the time results are published?  
1-6 months ☐      7-12 months ☐      13-18 months ☐      19-24 months ☐      longer ☐  
a                                  b                                  c                                  d                                  e
9. Upon which sources do you most rely for keeping currently abreast of scientific publications in your area of interest or research?  
\_\_\_\_\_
10. Which sources (if any) have you tried to use but found to be of little value for finding information important to your research?  
\_\_\_\_\_

## SOURCES

- |  |  |  |
|--|--|--|
| a <input type="checkbox"/> Informal personal contact or correspondence (other than with colleagues or at meetings) | h <input type="checkbox"/> Published indexes or catalogs                               | q <input type="checkbox"/> Office or agency reference file or reference services             |
| b <input type="checkbox"/> Conversations with colleagues   | i <input type="checkbox"/> Memory or previous use                                      | r <input type="checkbox"/> Bibliographies and reference lists                                |
| c <input type="checkbox"/> Browsing in old or out-dated literature   | j <input type="checkbox"/> By chance or accident (as while looking for something else) | s <input type="checkbox"/> Library card catalogs   |
| d <input type="checkbox"/> Preparation of invited papers or speeches   | k <input type="checkbox"/> Abstracting journals or services                            | t <input type="checkbox"/> Library reference services  |
| e <input type="checkbox"/> Personal files, notes, or reference lists   | l <input type="checkbox"/> Personal or professional activities outside USDA            | u <input type="checkbox"/> Periodic or cumulative indexes individual journals or periodicals |
| f <input type="checkbox"/> Library acquisition list  | m <input type="checkbox"/> Routing and distribution of current literature              | v <input type="checkbox"/> Browsing in library   |
| g <input type="checkbox"/> Recent issues of journals or periodicals  | n <input type="checkbox"/> Your other work or problems                                 | w <input type="checkbox"/> Counsel or advice of superiors                                    |
|  | o <input type="checkbox"/> Review and historical articles                              | x <input type="checkbox"/> Standard reference books, texts or handbooks                      |
|  | p <input type="checkbox"/> Attendance at scientific and technical meetings             | y <input type="checkbox"/> Periodic progress reports   |
|  |  | z <input type="checkbox"/> OTHER (specify) _____   |



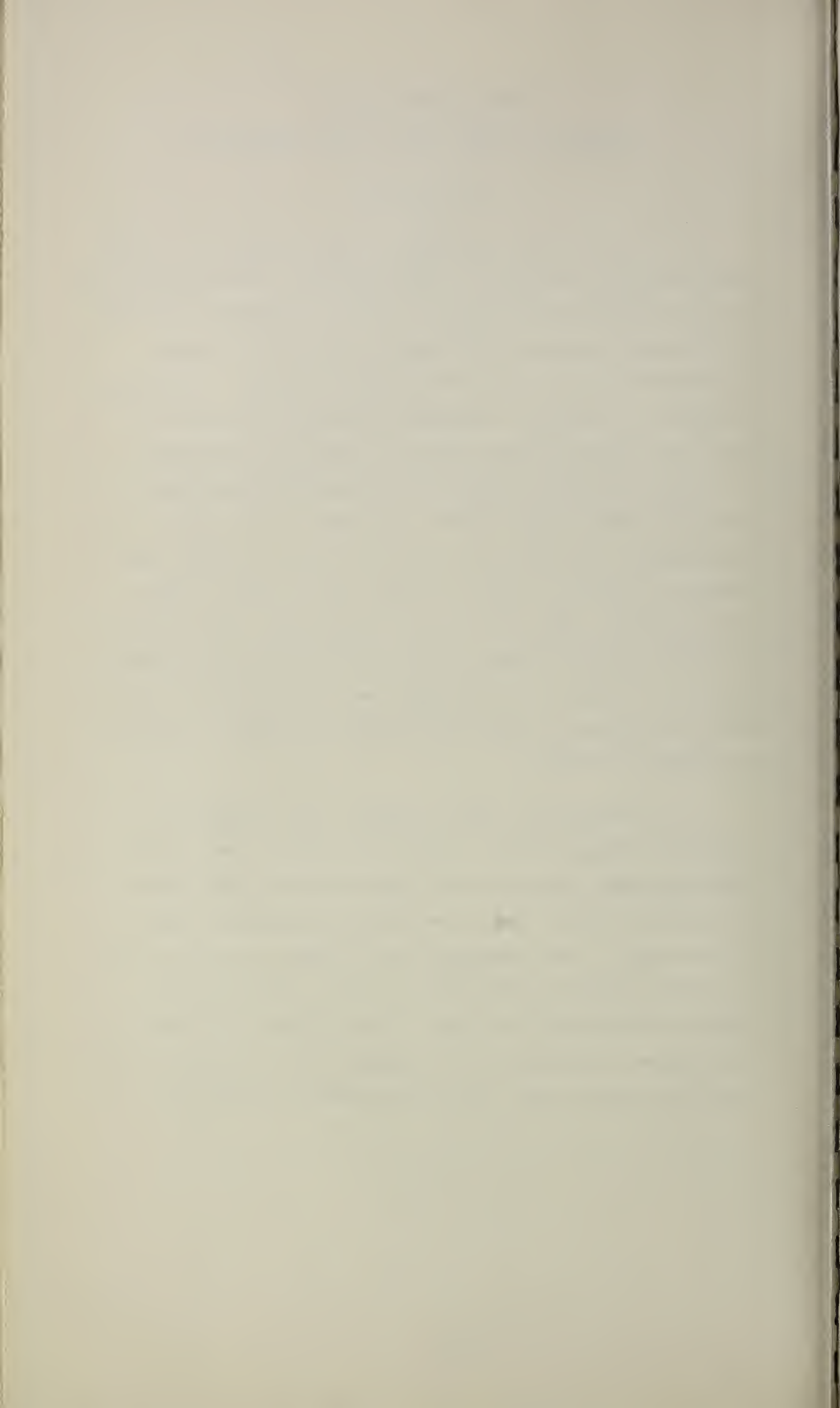
REQUIREMENT INQUIRY  
INFORMATION SOURCES USED BY USDA RESEARCHERS

S U M M A R Y

(1) Recent issues of journals or periodicals, (2) abstracting journals or services, (3) bibliographies, and reference lists, and (4) routing and distribution of current literature, were the most important sources of information used by USDA research scientists that may be classed as library services. Of the respondents to a survey of Department scientists, there were 93 percent who reported recent issues of journals or periodicals as a means of keeping abreast and 85 percent who marked this source for leads to new methods, techniques, or procedures. Bibliographies and reference lists were first and abstracting journals or services second as sources used to begin a retrospective search. Although the above sources have been classed as library services because of the more complete coverage available from a library, it is realized that the scientist or his agency may personally obtain the important journals in a particular field of interest.

(1) Conversations with colleagues, (2) attendance at scientific meetings and (3) informal personal contacts or correspondence, are the sources of a personal nature that were in the top seven sources used to meet various information needs of the scientists. This reaffirms other findings of the importance of personal contacts to the research staff. These personal sources were important for ideas for new projects, for leads to new methods, techniques, or procedures, and for leads to unfamiliar subject areas. As would be expected finding out





about research prior to publication was mostly through these sources. About three fourths of the scientists reported that it was from 7 to 18 months after they heard about research before it was published.

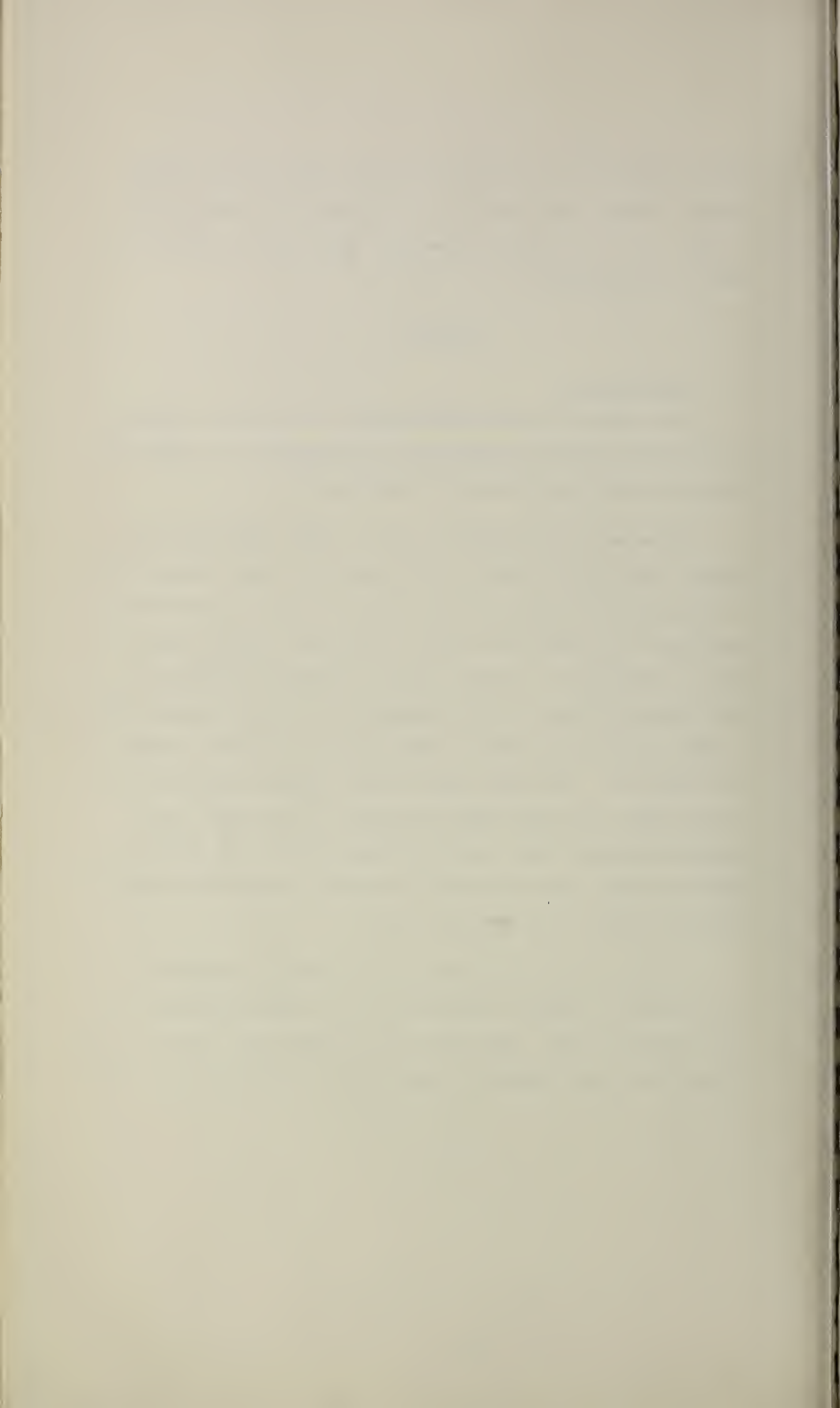
#### GENERAL

##### Introduction:

The purpose of this questionnaire is to obtain a measure of the USDA scientists' professional requirements for published information and the problems in obtaining it.

There were ten questions in all. Seven questions asked sources used to gain access to information to meet various kinds of needs such as: ideas for new projects; leads to new methods, techniques or procedures; leads in unfamiliar subject areas; to begin a retrospective search; to find historical material; to keep currently abreast in the scientist's area of research; and to find out about the work of other scientists before results were published. The first question was a general query as to sources that are or have been available and used most. One question asked the time interval between finding out about research work and the publication of results; another for sources tried but found to be of little value.

A list of potential sources of information identified "a" through "y" appeared after each of the questions except the one related to time. The same list of sources was used each time. Instructions were: answer each question by marking one or more of



the sources; the source list is not exhaustive and some items may overlap or may not apply to all given questions; if in doubt mark all items which may be applicable in any given case.

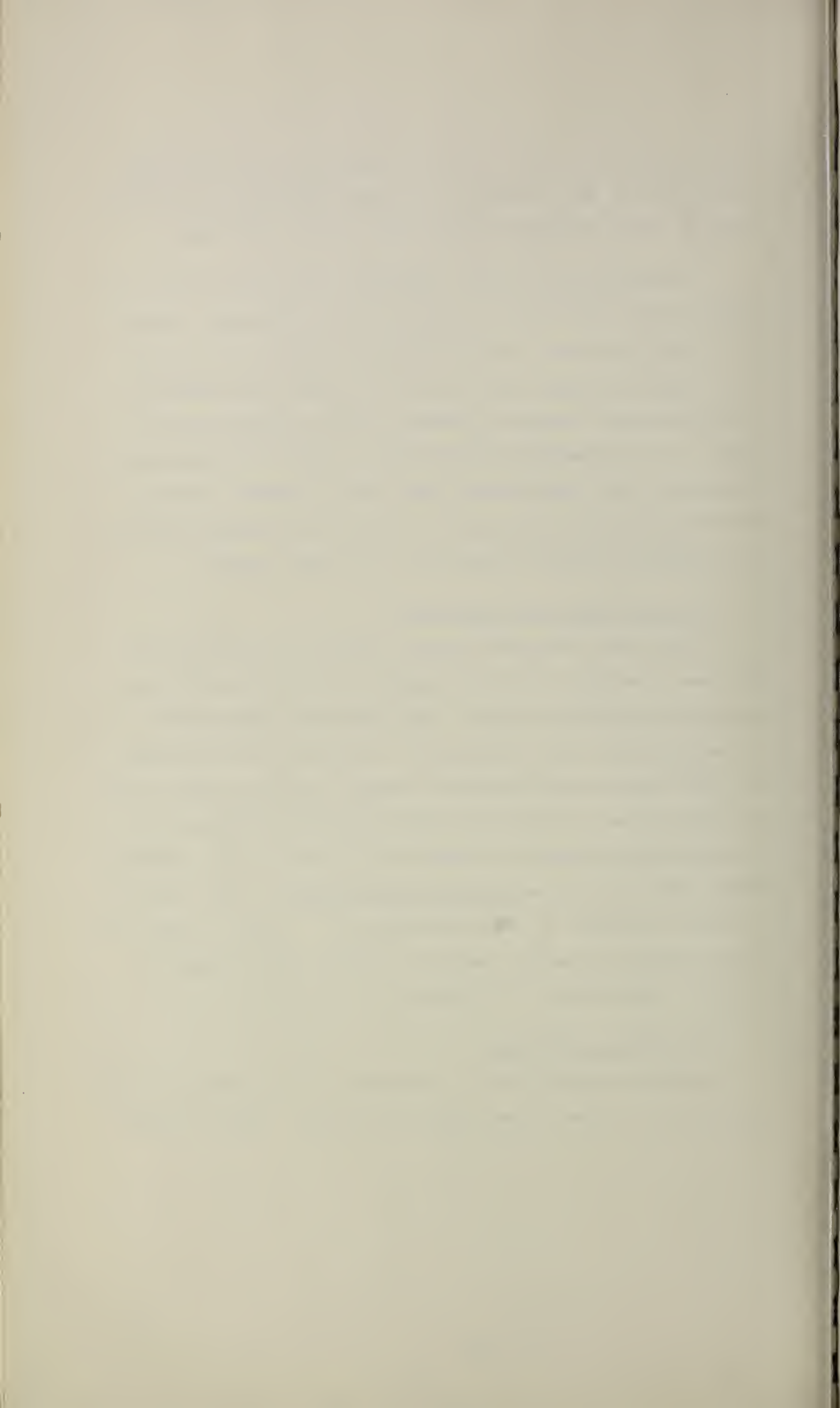
Although the 25 sources appeared on the questionnaire in random order, they may be classed in two broad groups. Namely (1) library services, and (2) personal. There are 13 sources that relate to library services and 12 sources that generally require personal contacts, personal files or working arrangements. In the discussion and in some of the tables and charts, the sources have been grouped under the two general headings and arranged within each group in order of importance according to a composite rating as described in the next section.

#### Sources Marked per Respondent:

There were 790 questionnaires returned out of 915 mailed. This was a response rate of 86 percent and represented 18 percent of the population group. Most respondents answered all of the questions with one exception. Only about half answered the last question which asked for sources tried but found to be of little value. Of the 25 sources listed for each question, the respondents marked an average of 10 sources for the question which asked for sources available and used most. This question is more a composite of the other questions. For the 6 questions which related to specific needs the average number marked per question ranged from 4 to 6 sources.

#### Bar Charts and Tables:

Charts R1 and R2 show the percentage of respondents marking each source for the 13 most important sources. Chart R1 shows





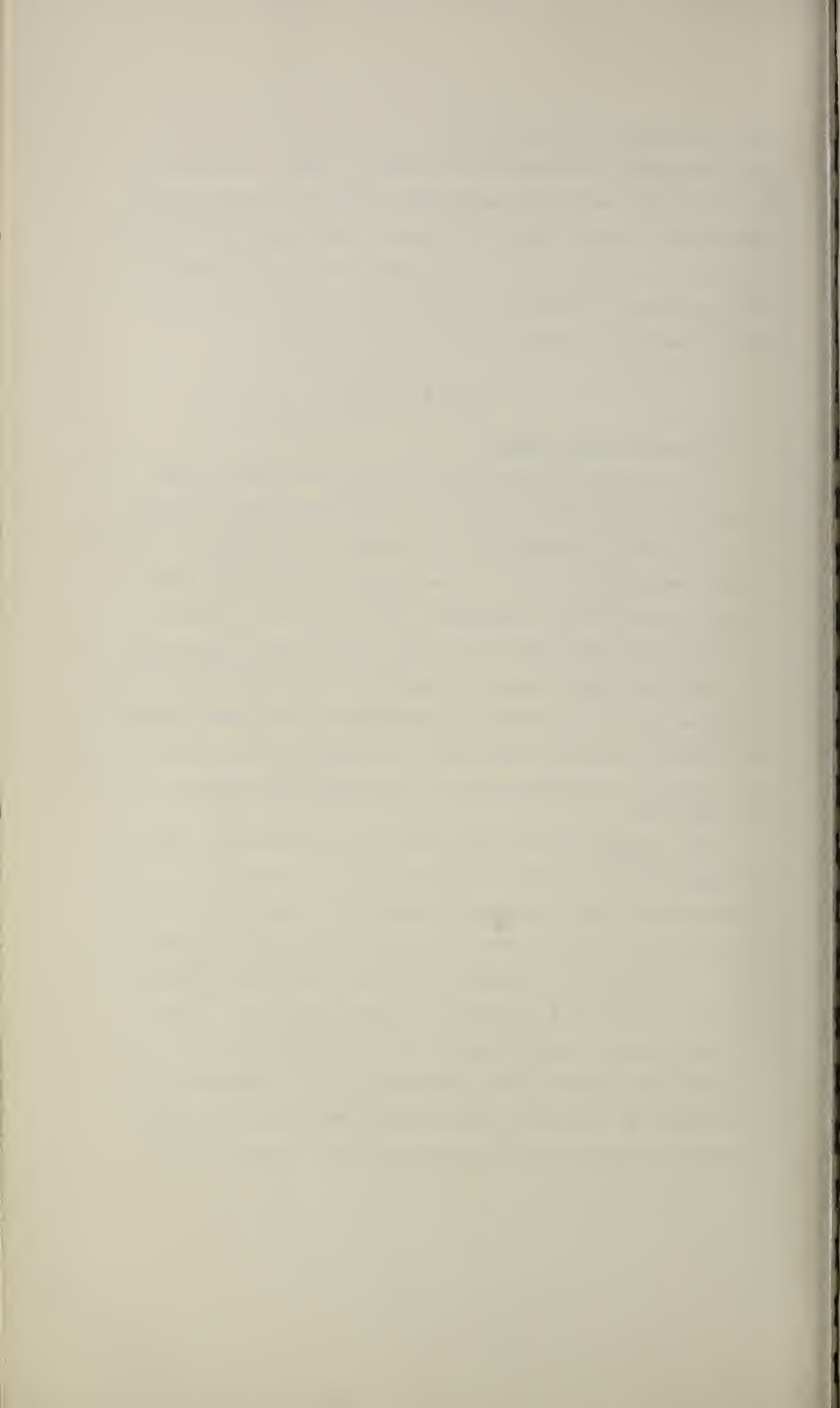
the percentages for questions 2, 4 and 5 while chart R2 shows the percentages for questions 3, 6 and 9. Chart R3 shows the 7-question composite rank percentage for all 25 sources and for comparative purpose, Chart R4 shows the percentage rank score for question 1 - sources available and used most. Charts R5-12 show the percentage of respondents marking each of the 25 sources for the 9 questions. The data are in tables R13-17.

## S O U R C E S

### Composite Rank Rating:

As a means of measuring the overall usefulness of the 25 sources listed irrespective of the specific problem or purpose of search, a composite rating system was devised for combining questions 2-7, and 9. The composite score gives equal weight to each of the 7 questions. The 25 sources for each question were ranked from 1 for the highest number of responses to 25 for the lowest number of responses, --- see the statistical summaries for the Requirement Questionnaire. The source ranks were totaled for the 7 questions. The highest possible score of 7 (rank of 1 for each of the 7 questions) was equated to 100. See Table R14.

The rating of the sources based on this composite rank scoring is shown in chart R3, and statistical tables R13. 'Conversations with colleagues' scored the highest at 89 while 'preparation of invited papers or speeches' scored the lowest at 23. Of the top 10 sources, 4 may be classed as relating to personal contacts and 6 related to library services. In the personal contacts class in addition to 'conversation with colleagues', the leading source, there was the 4th rated source, 'attendance at scientific and technical meetings'; the 6th, 'informal personal contact or correspondence'; and the 9th,

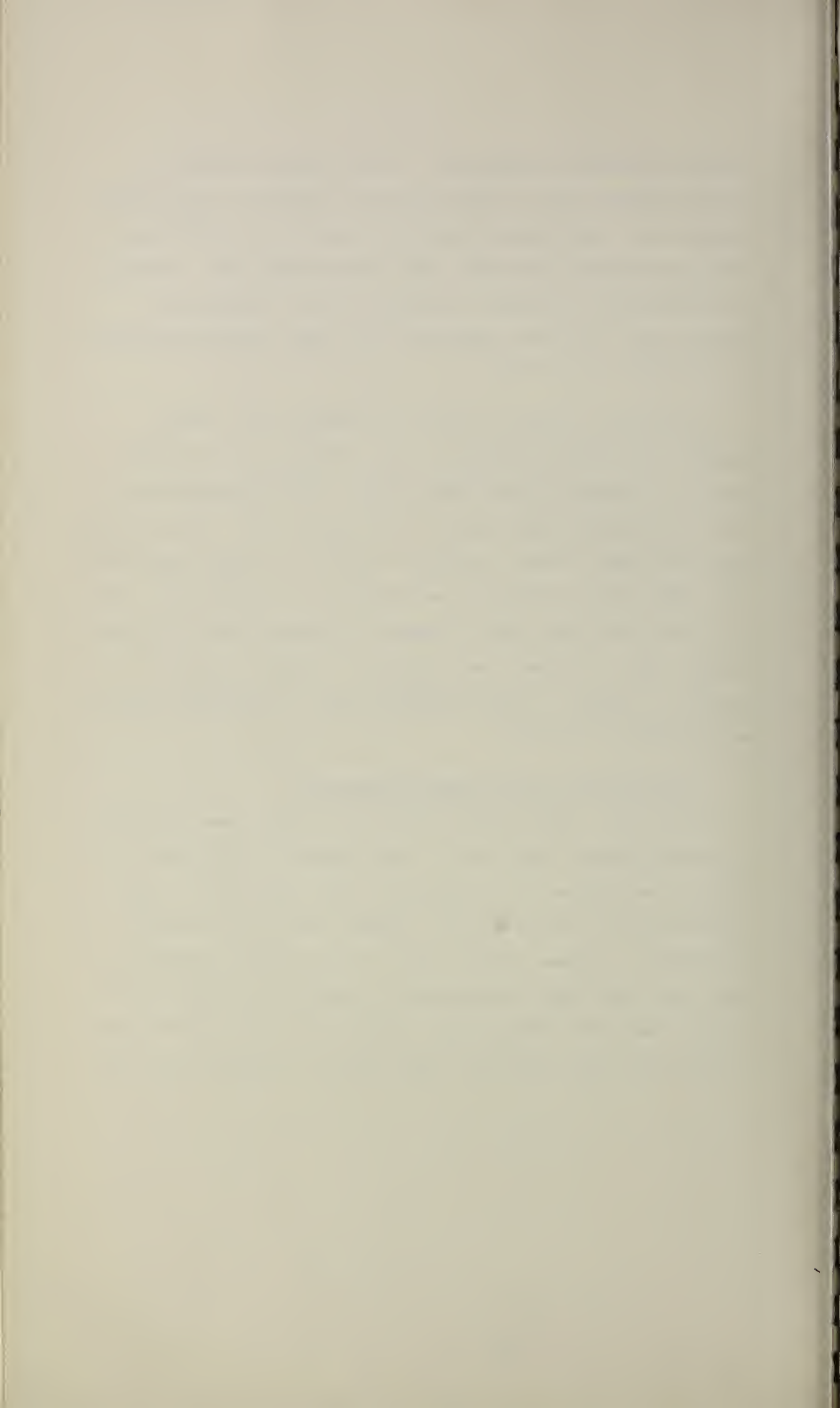


'council or advice of superiors'. The 6 sources related to library services were: 'recent issues of journals or periodicals' scoring 2nd.; 'abstracting journals or services' in 3rd place; 'bibliographies and reference lists' which rated 5th.; 'routing and distribution of current literature' 7th.; 'standard reference books, texts and handbooks' 8th.; and 'review and historical articles' rated 10th.

The least important source of information for the Department scientists is reported to be 'preparation of invited papers or speeches', with a score of 23. 'Library acquisition lists' rated next to the lowest with a score of 25. Other sources among the lowest 5 were 'browsing in old or out-dated literature', 'your other work or problems' and 'memory or previous use'. The next 5 from the bottom were 'personal or professional activities outside USDA', 'library card catalogs', library reference service', 'office or agency reference files or reference service', and 'browsing in library'.

#### Availability and Usefulness of Sources:

Question 1 asked "Which sources are or have been available to you and have you used most?" (For comparative purposes a rating score similar to the composite score was used with rank representing the source with the highest number of responses scored 100). Sources scoring high in the 7-question composite score also rated high for question 1, relating to sources available and used most. Significant exceptions: 'published indexes or catalogs' which rated 84 on the used most score but only 53





on the composite score; 'standard reference books, texts' or handbooks', 92 used most but 62 composite; 'personal files, notes or reference lists', 76 vs. 54; and 'library acquisition lists', 40 vs. 25. In these instances it appears that the questions about specific needs did not include the use the respondent had in mind when he marked the source as used most.

This question may be an indication of the general usefulness of a source but can not be used to access availability. If there were doubts in the minds of the respondents as to the definition of "used most" then this makes interpretation of the answers uncertain. In answering this question a respondent may not check a source because it has not ever been available, or not check it because he judged it not "most useful" even though available.

#### How Well Does a Particular Source Meet Various Needs?

(Discussion omits a source reported by less than 40% of scientist for any one question).

Table R15 shows the proportion of scientists in the sample marking a particular source to meet various requirements for information as measured by the 7 questions (questions 2-7, and 9). Table R17 shows this percentage for field scientists compared with Washington, D. C.-Beltsville scientists and Table R16 for junior grade scientists compared with senior grade scientists.

#### Library Services Sources:

(g) 'Recent issues of journals or periodicals' was marked by over 50 percent of the scientists for all questions except as a help in finding useful historical material or to find out about



research prior to publication. Its most important use was to keep abreast of scientific publications in the researchers area of interest, being marked by 93 percent of the scientists in response to this question. Its next importance as a source was in leads to new methods, techniques or procedures (marked by 85%). This source ranked first for 3 questions, second for one and third for another.

(k) 'Abstracting journals or services' was of equal importance as a source for question 9, keeping abreast of scientific publications and question 3, for beginning a retrospective search -- marked by 54 percent of the scientists. It ranked among the top 6 sources for 5 questions.

(r) 'Bibliographies and reference lists' serves the most useful source for beginning a retrospective search being reported by 54 percent of the respondents. There were 39 percent of the scientists who marked it for leads to new information about methods, techniques or procedures and 35 percent who marked it for leads to information in unfamiliar subject areas.

(m) 'Routing and distribution of current literature' was most useful for question 9 -- keeping abreast of scientific publications (23%)-- and question 4 -- new and useful information about new methods, techniques or procedures (16%).

(x) 'Standard reference books, texts, or handbooks' served to find historical material (marked by 50%), to begin a retrospective search (43%) and leads to information in unfamiliar subject areas (41%).





(o) 'Review and historical articles' - This type of article, as would be expected, was most useful as a source for finding useful historical material (marked by 65%) but also helpful in beginning a retrospective search for information pertinent to a project or subject area (45%).

(h) 'Published indexes or catalogs' served most importantly as a source for the same needs as in (o) 'Review and historical articles' but in reverse order. This source was marked by 40 percent of the scientist when beginning a retrospective search while 33 percent marked it as a help to find useful historical material.

(u) 'Periodic or cumulative indexes to individual journals' showed the same use as (h) 'published indexes or catalogs'. It was marked by 43 percent as useful when beginning a retrospective search and by 28 percent to find useful historical material.

Personal Sources:

(b) The source 'conversations with colleagues' is shown to be most useful for finding out about pertinent work of other scientists before results were published -- marked by 85 percent of the respondents. This source was next in importance for leads to ideas for new projects (marked by 75%) and for leads to new methods, techniques or procedures (marked by 72%). Conversations with colleagues ranked in the top 8 sources for all 7 questions.

(p) 'Attendance at scientific and technical meetings' is reported to be the most important as a source to find out about





unpublished work of other scientists, being marked by 73% of the scientists in response to this in question 7. It serves next in importance as leads to new materials. Sixty-one percent of the scientists marked it as a source for ideas for new projects and the same percentage marked it for leads to new methods, techniques, or procedures. This source ranked second for 1 question, third for 3 questions and in the top 4 sources for 5 questions.

(a) 'Informal personal contact or correspondence (other than with colleagues or at meetings)' was most useful to fill needs asked in question 7 -- to find out about work of scientists before results were published -- as it was reported as a source for this question by 68 percent of the respondents.

(w) 'Council or advise of superiors' served its most important role in leads for ideas for new projects or investigations. It was reported as such a source most often (52%) by the junior grade than by the senior (34%) reflecting the guidance given a junior scientist when starting on a new project.

(e) 'Personal files, notes, or reference lists' was used as a source principally when beginning a retrospective search for information pertinent to a project or subject area. It was marked by 46 percent of the respondents in response to the retrospective search, question 3.

#### Sources of Little Value:

Question 10 asked for the sources that had been tried but found to be of little value for finding information important to the research. The response rate to this question was low, as it



was answered by only about half of the respondents. In general the sources that were ranked at the bottom of the list in response to question 1 -- sources available and used most -- were ranked at the top for the question asking for sources that were tried but found to be of little value. The first four sources ranked as of little value relate to library services. The first was 'browsing in old or out-dated literature'. However, there was one need that this fulfilled quite well. As a source to help find useful historical material, it was marked by 41 percent of the respondents. 'Library card catalogs' ranked second in the little value scale which shows that the card catalog isn't used much as a research tool, although it is indispensable as a locator of publications in a collection. 'Browsing in the library' ranked third in the little value scale. However, 27% of the scientists marked this source for leads to unfamiliar subject areas and 21% as an aid to find historical material. The 4th ranking little value source was 'library acquisition list'. This was substantiated by its low rank for usefulness for all but the question to keep abreast of scientific publications being marked by 22 percent of the respondents.

## R E Q U I R E M E N T S

### Leads to New Materials, questions 2, 4, & 5

THROUGH WHICH SOURCES HAVE YOU FOUND IDEAS FOR NEW PROJECTS  
OR INVESTIGATIONS? (2)

Personal contacts are most fruitful in the search for new ideas. Conversations with colleagues was the leading source





for ideas for new projects or investigations. It was marked by 75 percent of the scientists who responded to the question. More scientists in the field (77%) used this source than did those in Washington, D. C.-Beltsville (70%).

Recent issues of journals or periodicals was second in importance at 67% for all researchers but 69% for field compared with 61% for D. C.-Beltsville. This was the only source in the top five that related to library services. Personal contacts characterized the next 3 sources: attendance at scientific and technical meetings (61%), counsel or advice of superiors (42%) and informal personal contact or correspondence (41%). In all of the top 5 sources, the percentage marked by field workers was greater than by D. C.-Beltsville workers. Junior grade scientists relied more on counsel or advice of superiors (52% marked this source) than did senior scientists (34%). The source more important for senior grade than junior grade are: recent issues of journals, (70% vs. 64%), attendance at meetings (68% vs. 52%) and informal personal contact (44% vs. 38%). Junior grade would have less opportunity and also fewer contacts so that attendance at meetings would not be as fruitful as for the senior scientist.

WHAT SOURCES HAVE LED YOU TO NEW AND USEFUL INFORMATION  
ABOUT METHODS, TECHNIQUES OR PROCEDURES? (4)

The top 3 sources for finding leads to new methods and techniques are the same as for question 2 -- ideas for new projects -- although not in the same order. The source, recent issues of journals or periodicals ranked first and was marked by



85% of the scientists (87% for field and 78% for D. C.-Beltsville). This is the largest response to a single source for any specific question. Another library service namely the routing and distribution of current literature, ranked 4th. Two sources requiring personal contacts again rated near the top. Conversations with colleagues was second, at 72% and attendance at scientific meetings third, at 61%.

There was little difference in the sources marked by senior or junior scientists except, as would be expected, a higher percentage of senior scientists marked attendance at scientific meetings. Junior grade scientists probably do not attend as many meetings as do senior grade.

That field scientists depend more on each of the 4 leading sources, than do D. C.-Beltsville scientists, is shown by the larger percentage of field scientists marking each source. Recent issues of journals was marked by 87% of the field compared with 78% of D. C.-Beltsville scientists; conversations with colleagues 73% compared with 66%; attendance at meetings 63% compared with 54%.

WHAT SOURCES HAVE LED YOU TO INFORMATION IN PREVIOUSLY  
UNFAMILIAR SUBJECT AREA? (5)

The three sources marked by the largest number of scientists rank the same for leads in unfamiliar subject areas as for leads to new information about methods (question 4). Recent issues of journals or periodicals ranked first and was marked by 63% of the scientists; next was conversations with colleagues at 57%





and attendance at scientific meetings at 44%. Grade makes little difference in the response to the top 5 sources except attendance at meetings was reported more frequently by senior grade. Sources were generally reported about the same in the field as in D. C.-Beltsville. One exception was the 42 percent marked by the field for abstracting journals or services compared with only 29% useage by D.C.-Beltsville scientists.

Retrospective Search Questions 3 and 6:

WHAT SOURCES HAVE BEEN MOST USEFUL TO YOU WHEN BEGINNING A RETROSPECTIVE SEARCH FOR INFORMATION PERTINENT TO A PROJECT OR SUBJECT AREA? (3)

The three leading sources most useful when beginning a retrospective search take the form of library services: (1) bibliographies and reference lists were checked as a source by 56% of the scientists; (2) abstracting journals or services by 54% and (3) recent issues of journals or periodicals by 52%. Scientists in the field show these sources as the top 3 but in a different order of importance. Abstracting journals are the top source for the field at 58%, with bibliographies and reference lists at 57% and recent issues of journals or periodicals at 47%. Scientist in D. C.-Beltsville show a different emphasis on the source, personal files, notes, or reference lists which ranked 4th for all workers, but takes the leading place being marked by 53%, followed by bibliographies and reference lists at 52%, and recent issues of journals or periodicals at 47%. For this group abstracting journals or services which ranked 2nd for all workers, at 54%, moved down to 6th rank at 42%.





The senior scientist ranks the sources in the same order as all grades. The junior scientists agreed on the 3 top sources but periodic or cumulative indexes to individual journals or periodicals (48%) ranked 4th compared with a rank of 7th for senior grades. The percentage of junior grade marking personal files, notes or reference or review and historical articles was considerably below the percentage of senior grade marking these 2 sources. The junior grade considered conversations with colleagues and periodic or cumulative indexes of individual journals or periodicals more important than did the senior grade.

WHAT SOURCES HAVE HELPED YOU TO FIND USEFUL HISTORICAL MATERIAL? (6)

In the search for historical materials, the top 10 sources are characterized by library services, except conversations with colleagues, which ranks 7th. Leading the list are review and historical articles scored by 65% of the scientists, standard reference books, texts, or handbooks, by 50%, and bibliographies and reference lists by 48%.

Browsing in old or out-dated material is an important source in a historical search, as it was recorded by 41% of the scientists. But this is the only type of information search for which browsing in old material is shown to be useful. For the other 7 questions the source ranked 15th or lower and for 4 questions it ranked 23rd or lower.

The grade group did not affect the choice of sources except for standard reference books. Senior scientists found this source more helpful than did juniors (52% vs. 46%) as did D.C.-Beltsville



scientists, at 56% compared with 46% for the field. The area did not make any difference in the responses to review and historical articles nor to browsing in old material but D.C.-Beltsville scientists scored the other 3 of the first 5 sources considerably more than did the field. Library card catalogs ranked 6th in the historical material search and 46% of D.C.-Beltsville scientists scored this source compared with only 29% of the field personnel. The difference in response for the two areas can only partly be explained by availability. There were 30% of the field scientists who reported library card catalogs available and useful (question 1) compared with 34% response by D. C.-Beltsville workers.

#### Keeping Currently Abreast Question 9

UPON WHICH SOURCES DO YOU MOST RELY FOR KEEPING CURRENTLY ABREAST OF SCIENTIFIC PUBLICATIONS IN YOUR AREA OF INTEREST OR RESEARCH (9)

Recent issues of journals or periodicals source was far ahead of other sources as a means of keeping currently abreast. All but 7 percent of the scientists marked this source. It was more important to field scientists (95%) than to Washington, D.C.-Beltsville group (87%) but of equal importance to junior and senior grade. Abstracting journals was an important source to field workers (59%), but was not relied upon to such an extent by Washington, D. C.-Beltsville group (38%). For all workers this source ranked next to the highest ranking source but was of equal importance to routing and distribution of current literature (54%). However, neither area nor grade showed much





influence on the response to routing current literature.

Attendance at scientific and technical meetings is reported to be important in keeping abreast of scientific articles. This source ranks 4th but at 46% was not far below abstracting journals and current literature distribution. As was the case in the search for ideas for new projects (question 2), for new methods and procedures (question 4), and for work of other scientists prior to publication (question 7), the attendance at meetings was more important to scientists in the field (49% vs 38%) and to senior scientists (50% vs. 41%).

Pre-publication Results - questions 7 & 8

IN CASES YOU CAN RECALL, THROUGH WHAT SOURCES HAVE YOU FOUND OUT ABOUT WORK OF OTHER SCIENTISTS PERTINENT TO YOUR OWN RESEARCH BEFORE THEIR RESULTS WERE PUBLISHED?(7)

As would be expected unpublished results were revealed through personal contacts in form of:

1. Conversations with colleagues reported by 85% of scientists.
2. Attendance at scientific meetings by 73%.
3. Informal personal contact by 68%.

Although counsel or advice of superiors ranked 4th, it was relatively unimportant, being scored by only 30% of the respondents.

Attendance at scientific meetings was marked by a larger percentage of field scientists (76% vs. 60%) and by more senior scientists (77% vs. 67%). However, for informal personal contacts the Washington, D. C.-Beltsville group scored highest



(72% vs. 67%), as did the senior grade (74% vs. 62%).

ABOUT HOW MUCH TIME SEEMS TO ELAPSE BETWEEN THE TIME YOU  
FIND OUT ABOUT SUCH WORK (OTHER SCIENTISTS) AND THE TIME  
RESULTS ARE PUBLISHED? (9)

Check time periods 1 - 6 months; 7 - 12 months; 13 - 18  
months; 19 - 24 months; longer.

Seven percent of the scientists reported that it was  
longer than 24 months after they heard about research before  
it was published. About 76 percent of the scientists marked the  
two time periods included between 7 to 18 months; 44% reported  
7-12 months and 32 percent reported 13-18 months.



## LIST OF CHARTS AND STATISTICAL TABLES

### S O U R C E S

#### Percentage of Respondents marking each Source:

- Fig. R1 Selected sources for question 2,4,5  
R2 Selected sources for questions 3,6,9

#### Rank Percentage:

- Fig. R3 Composite rank rating of sources for 7 questions  
R4 Rank percentage score for question 1 -- Sources available and used most.

#### Percentage of Respondents marking each source:

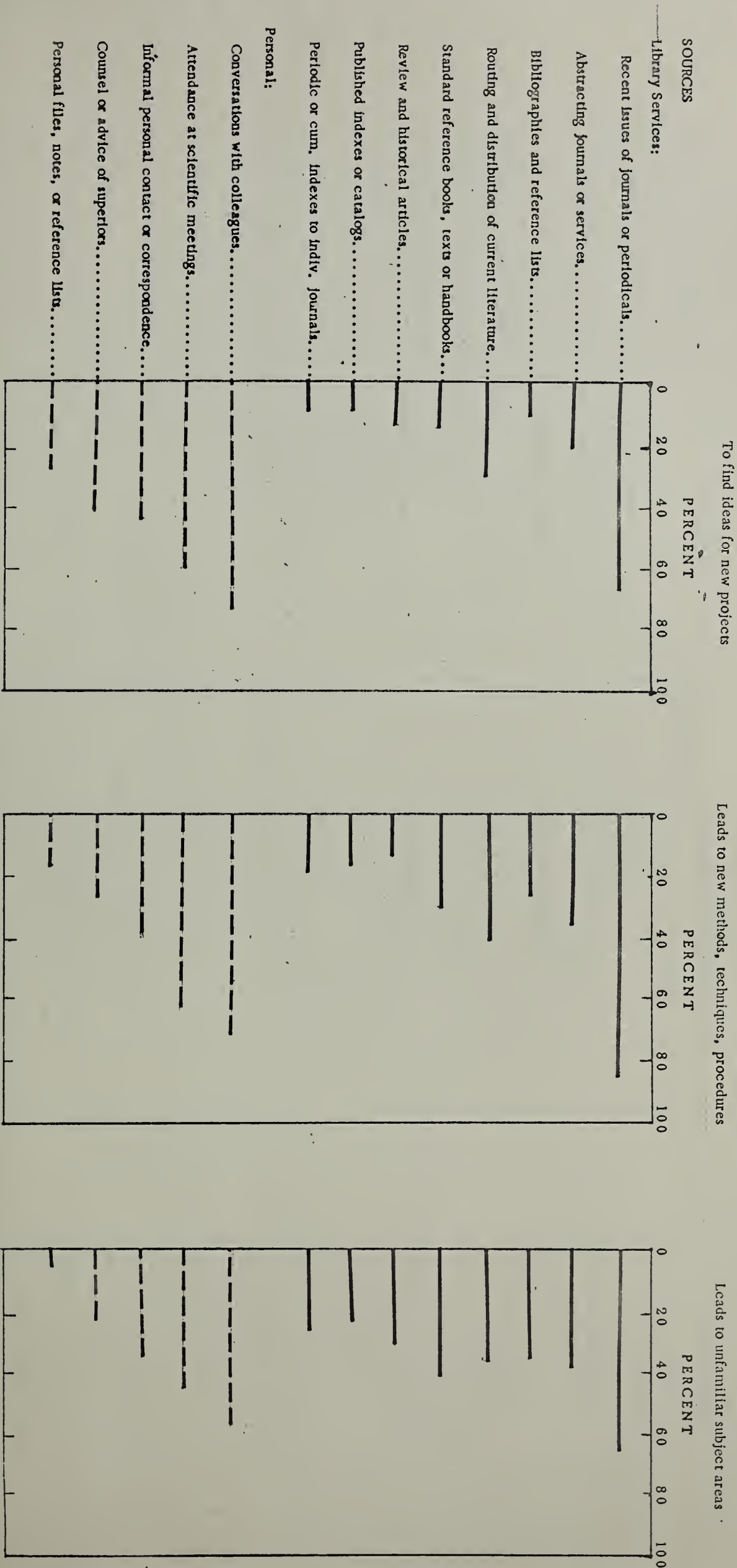
- Fig. R5 Sources leading to ideas for new projects -- Question 2  
R6 To begin a retrospective search -- Question 3  
R7 Leads to new methods, techniques, procedures -- Question 4  
R8 Leads to unfamiliar subject areas -- Question 5  
R9 To find historical material -- Question 6  
R10 To find out prior to publication -- Question 7  
R11 To keep abreast of scientific publication -- Question 9  
R12 Sources tried but found to be of little value -- Question 10
- Table R13 Rank percentage score for composite and Question 1  
R14 Source rank for each Question  
R15 All respondents  
R16 Comparison of Junior and Senior Scientists  
R17 Comparison of Field and D.C.-Beltsville Scientists

Tables 1 - 25 Summary of each question by area and by grade





SOURCES OF INFORMATION  
TO MEET NEEDS OF USDA SCIENTISTS  
Percentage of Respondents Marking each Source





# SOURCES OF INFORMATION TO MEET NEEDS OF USDA SCIENTISTS

Percentage of Respondents Marking each Source

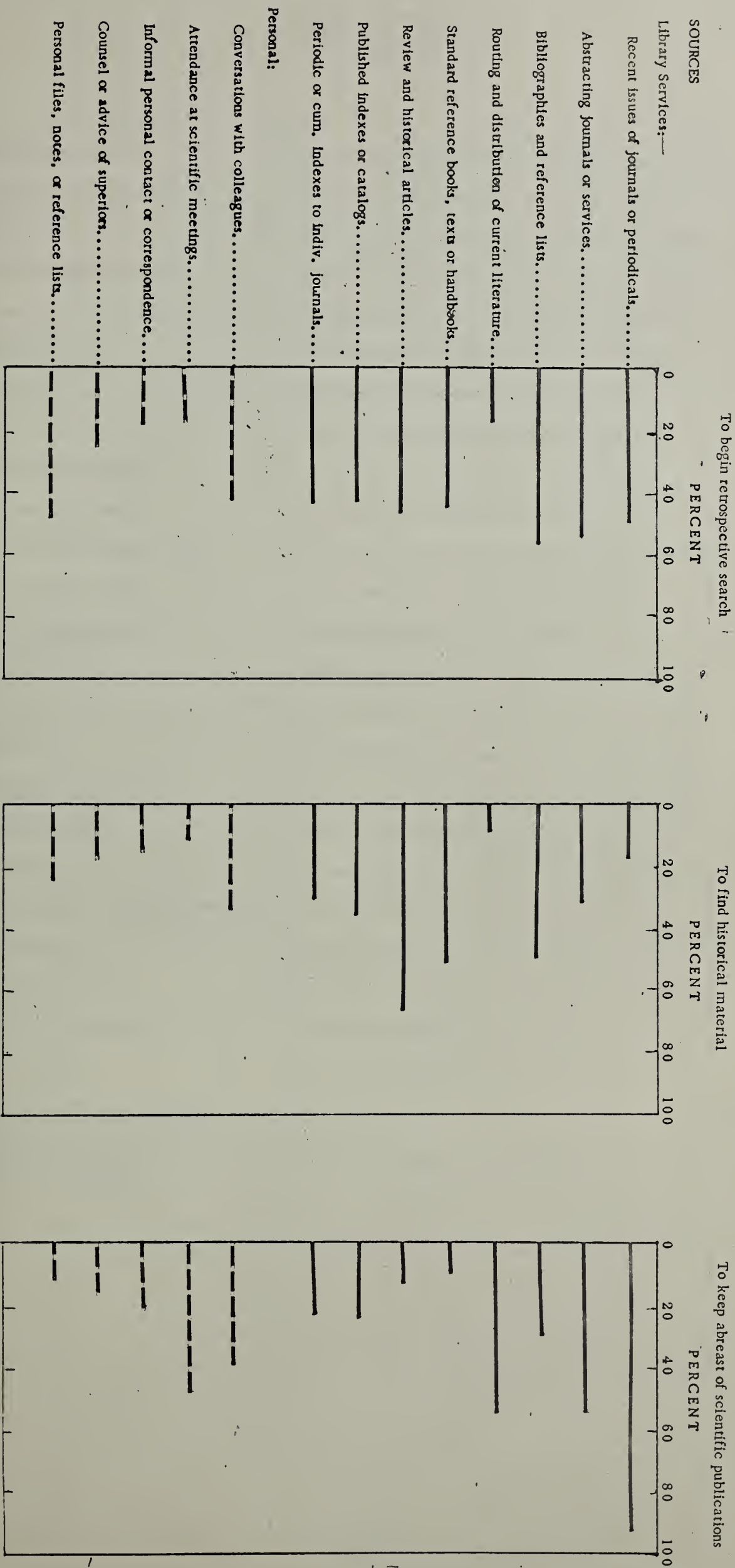


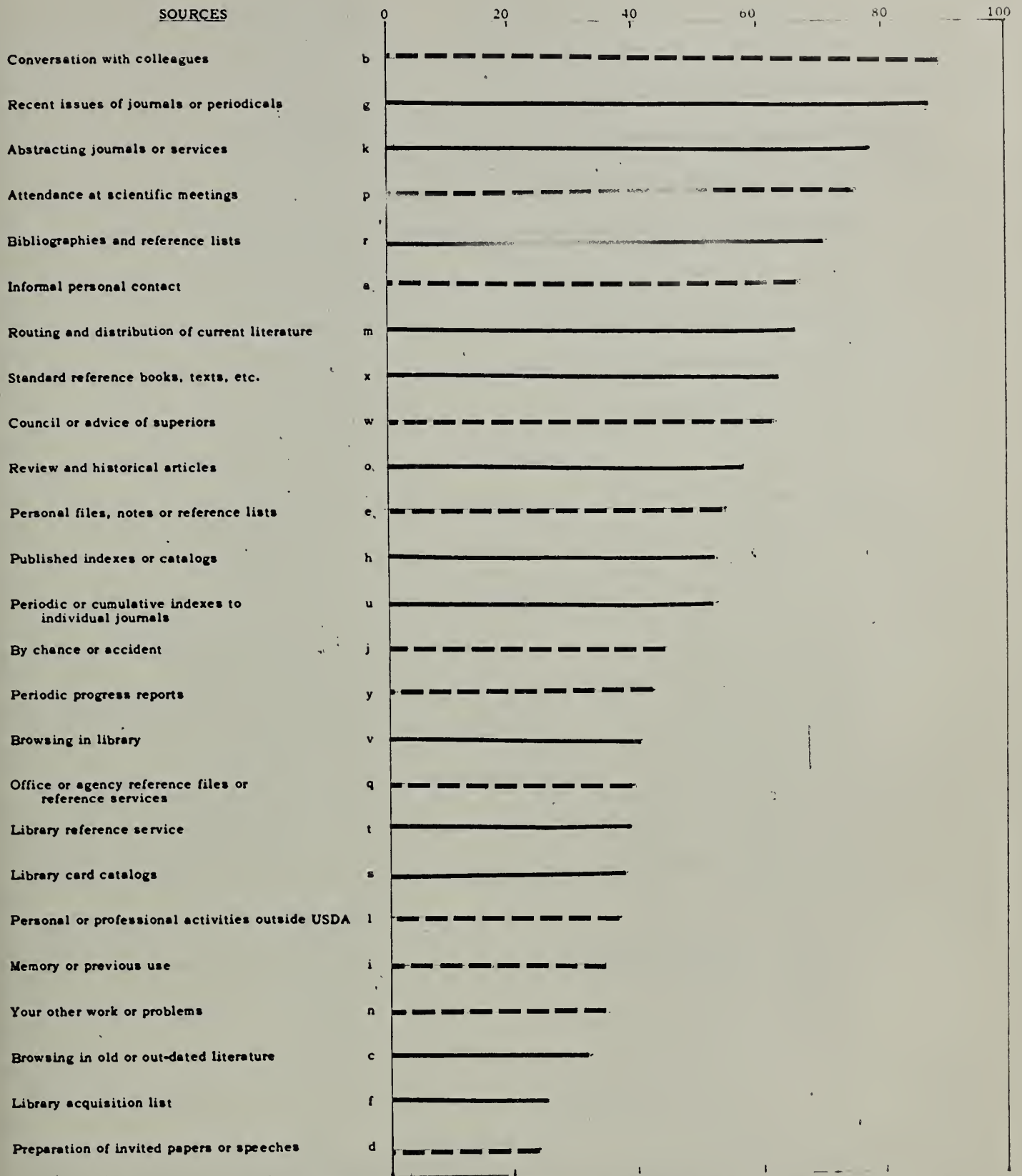
Fig. R 2





INQUIRY ON REQUIREMENTS  
Composite Rating of Sources for 7 questions;  
2 thru 7 and 9.  
Highest possible score = 100 1

Fig. R 3

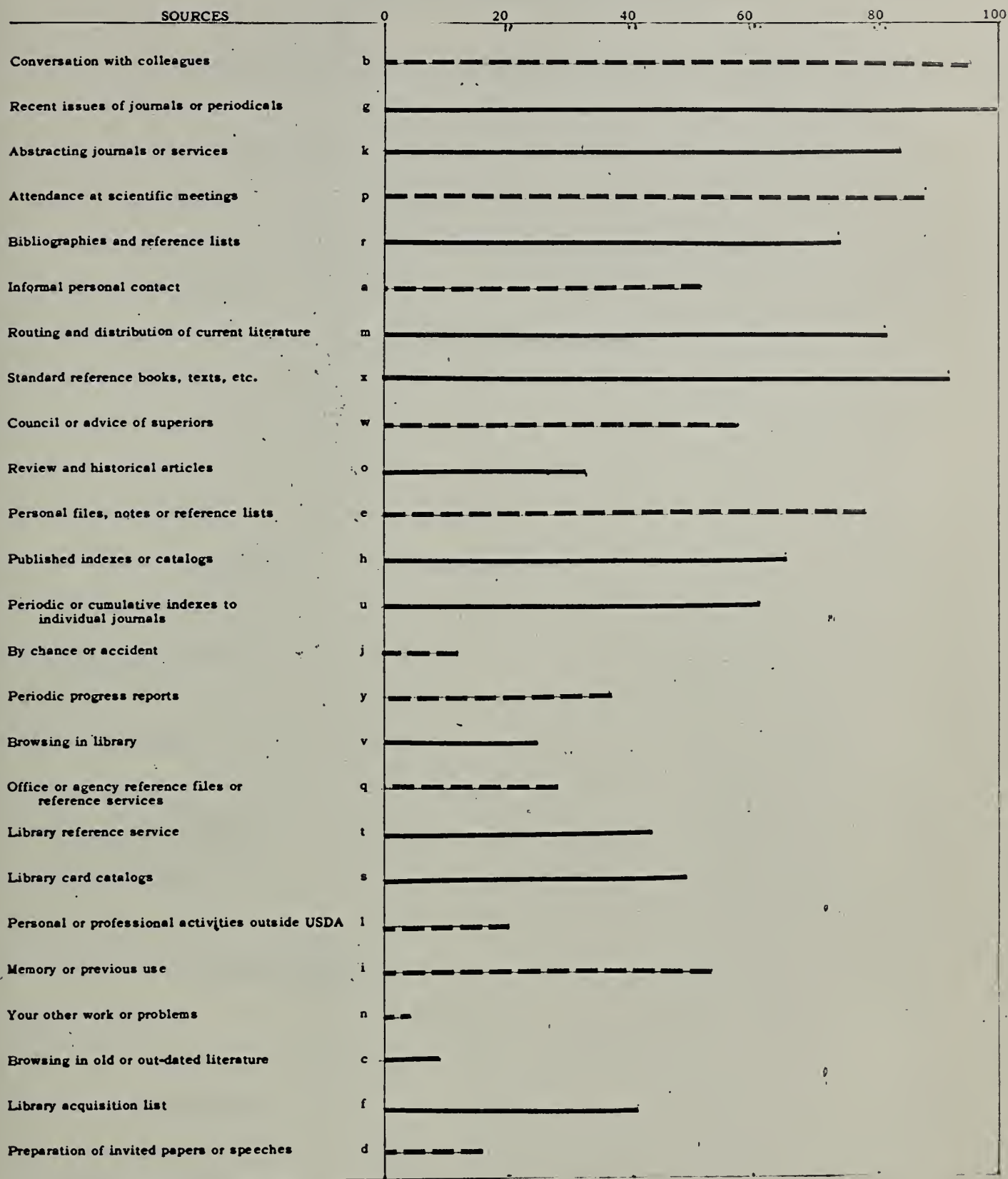


1/ 100 represents rank 1 for all 7 questions. For each question rank 1 assigned to the source with the highest number of responses.



**INQUIRY ON REQUIREMENTS**  
Sources available and used most, question 1.  
Rank 1 = 100 1 /

Fig. R 4



1 / Rank 1 assigned to the source with the highest number of responses.



INQUIRY ON REQUIREMENTS  
LEADS TO NEW MATERIALS

Fig. R 5

Question 2. Through which sources have you found ideas for new projects or investigations?  
Percentage of respondents marking each source.





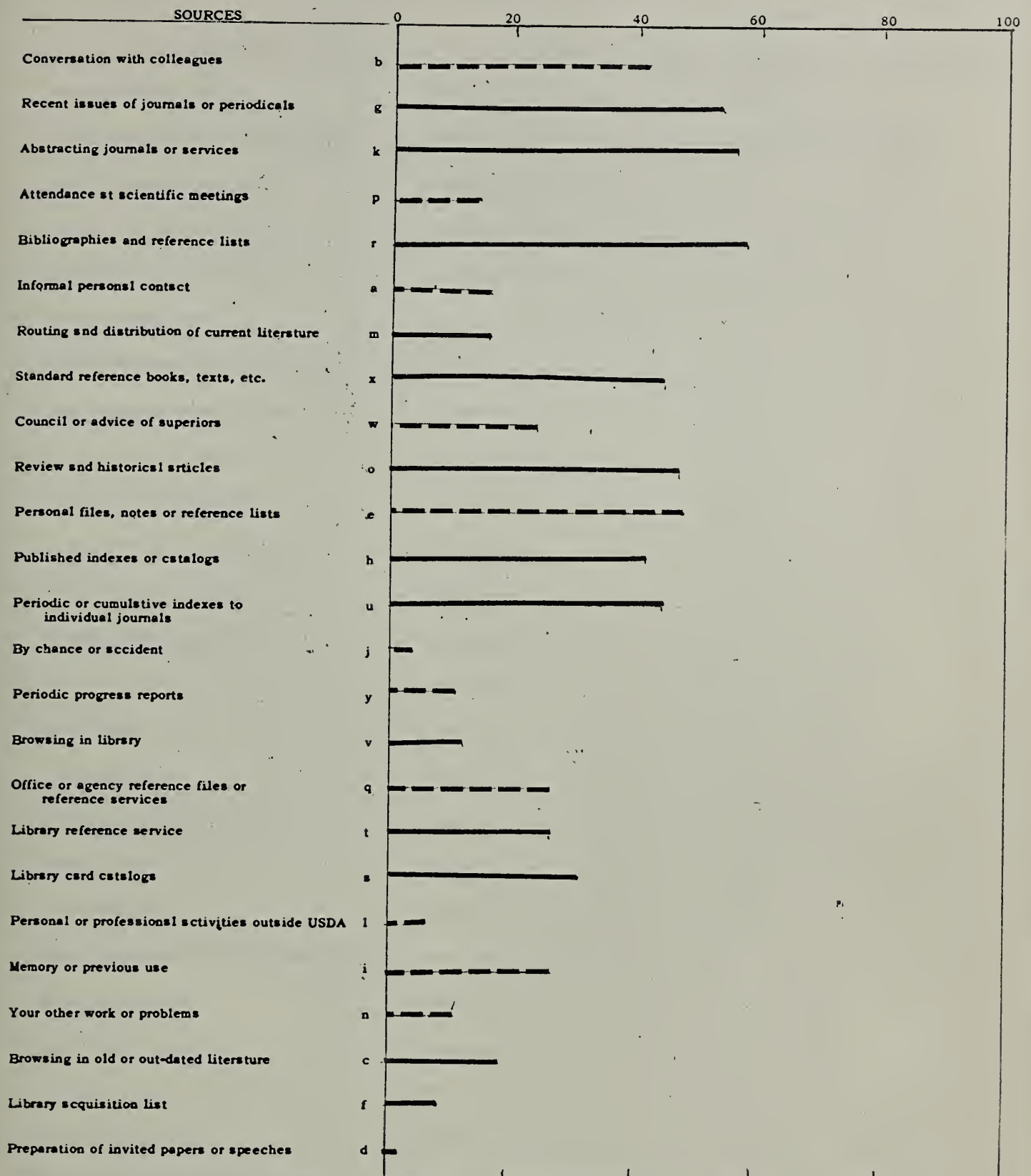


INQUIRY ON REQUIREMENTS  
RETROSPECTIVE

Fig. R 6

Question 3. What sources have been most useful to you when beginning a retrospective search for information pertinent to a project or subject area?

Percentage of respondents marking each source.





INQUIRY ON REQUIREMENTS  
LEADS TO NEW MATERIALS

Question 4. What sources have led you to new and useful information about methods, techniques or procedures?

Percentage of respondents marking each source.





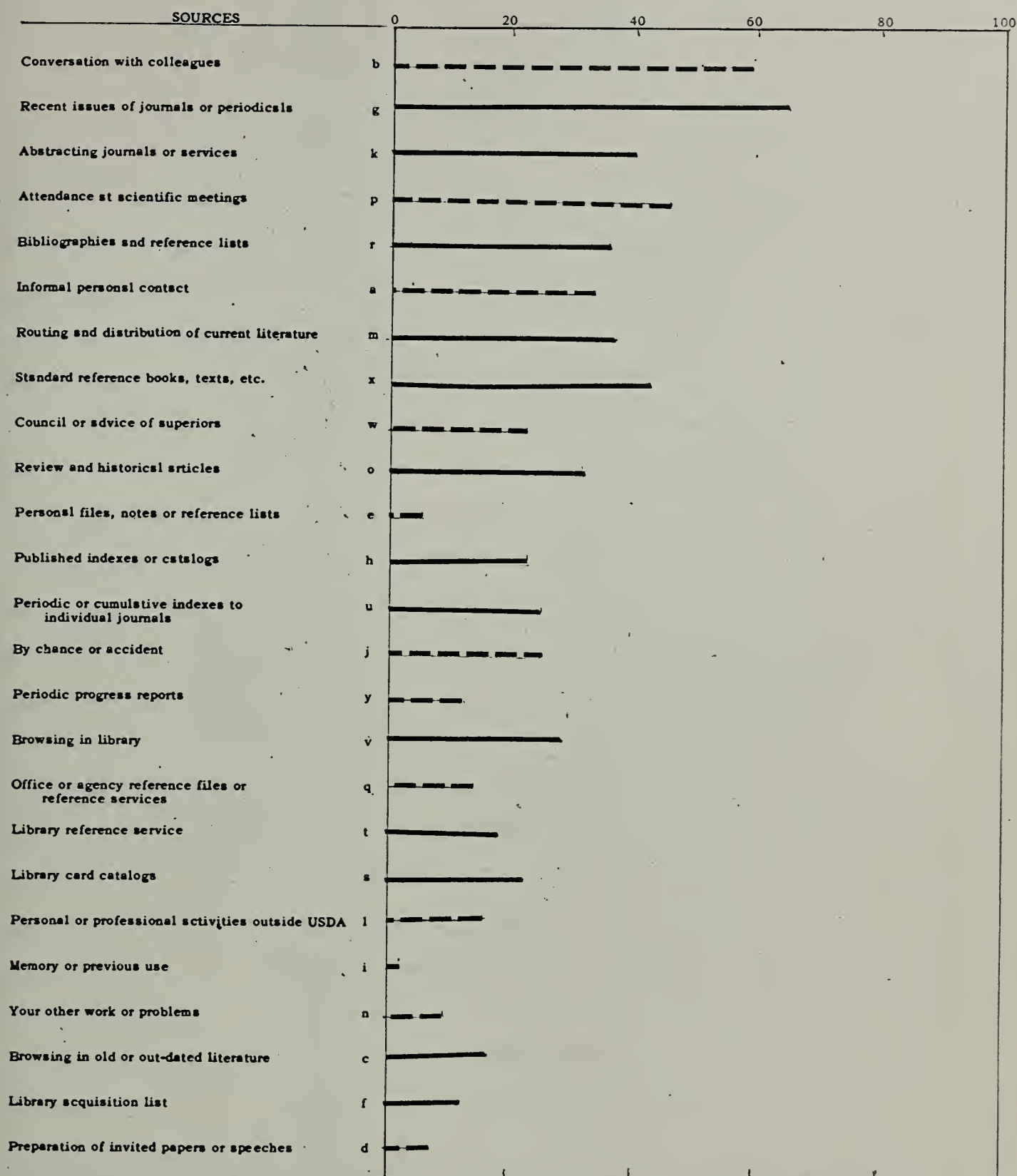


INQUIRY ON REQUIREMENTS  
LEADS TO NEW MATERIALS

Fig. R 8

Question 5. What sources have led you to information in previously unfamiliar subject areas

Percentage of respondents marking each source.



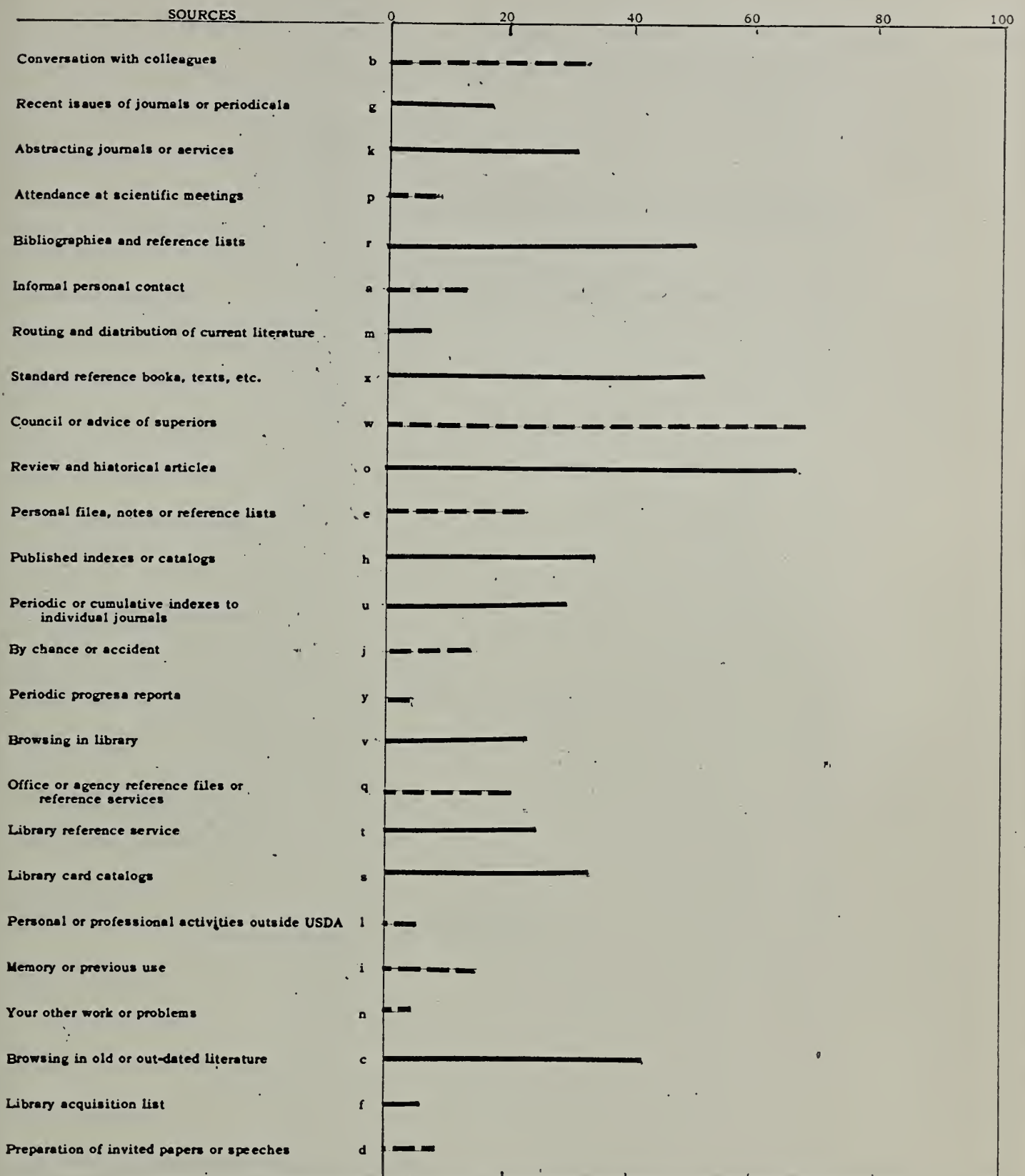


INQUIRY ON REQUIREMENTS  
RETROSPECTIVE

Fig. R 9

Question 6. What sources have helped you to find useful historical material?

Percentage of respondents marking each source.



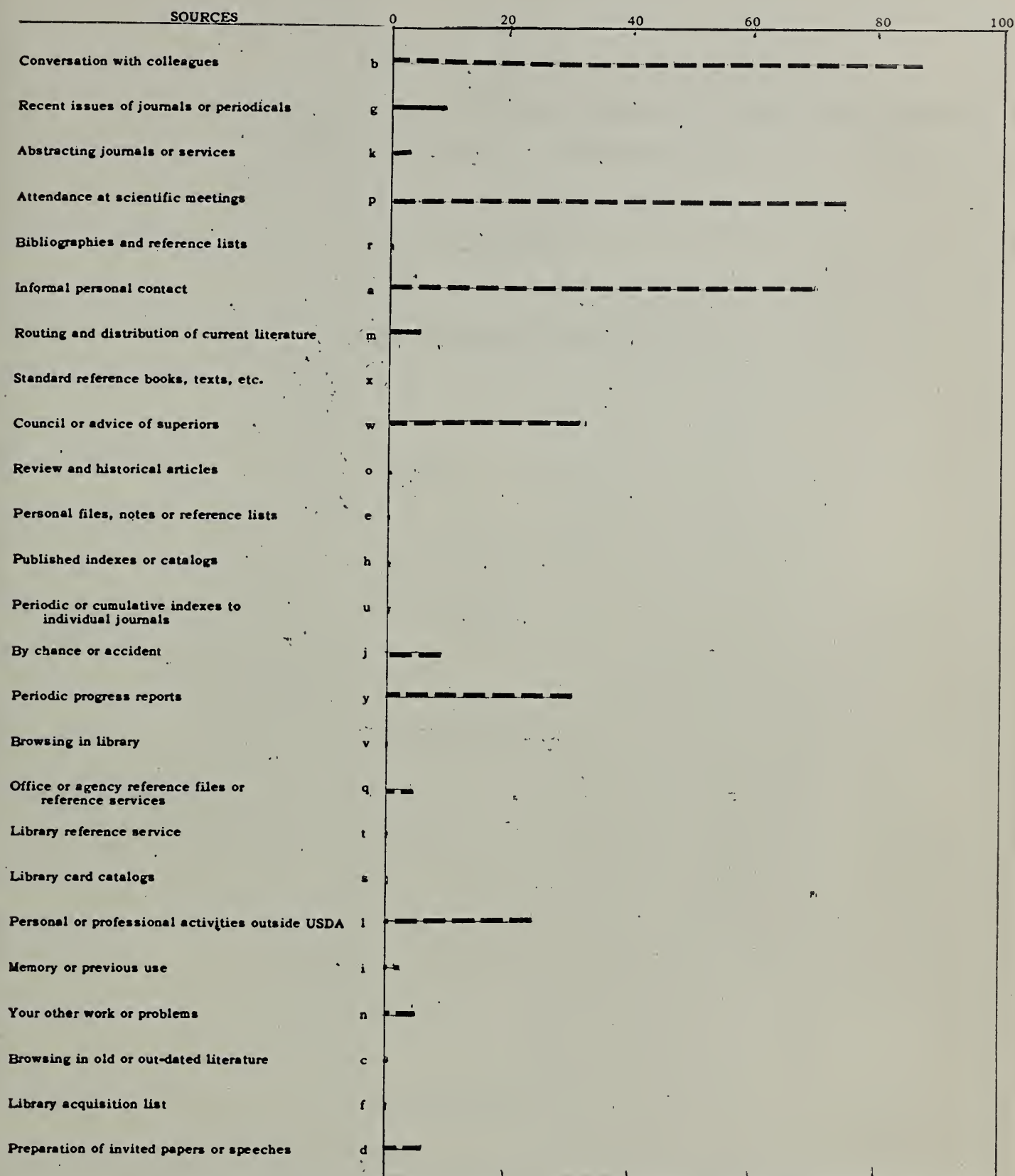


INQUIRY ON REQUIREMENTS  
BEFORE RESULTS PUBLISHED

Fig. R 10

Question 7. Through what sources have you found out about work of other scientists pertinent to your own research before their results were published?

Percentage of respondents marking each source.

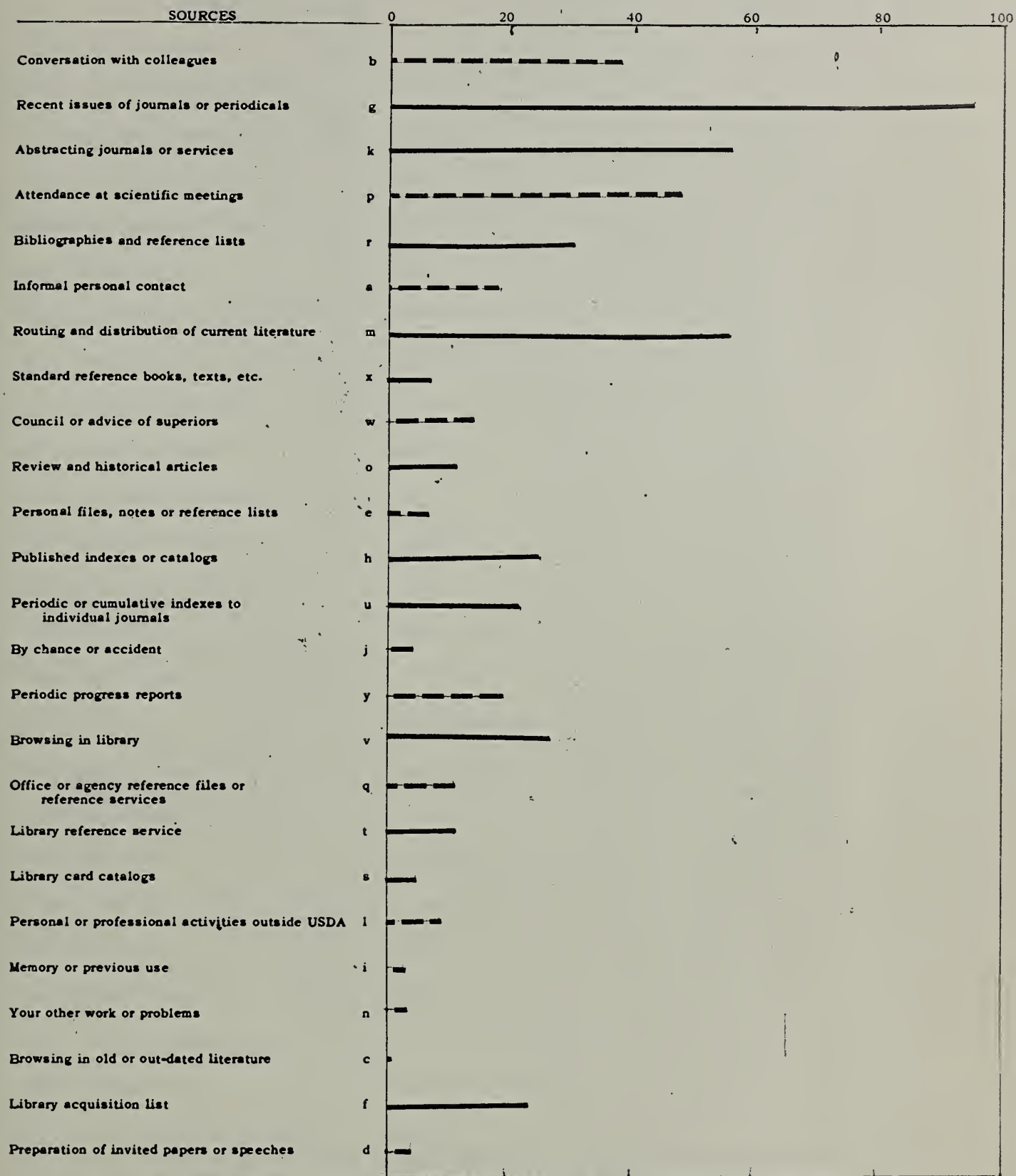






Question 9. Upon which sources do you most rely for keeping currently abreast of scientific publications in your area of interest or research?

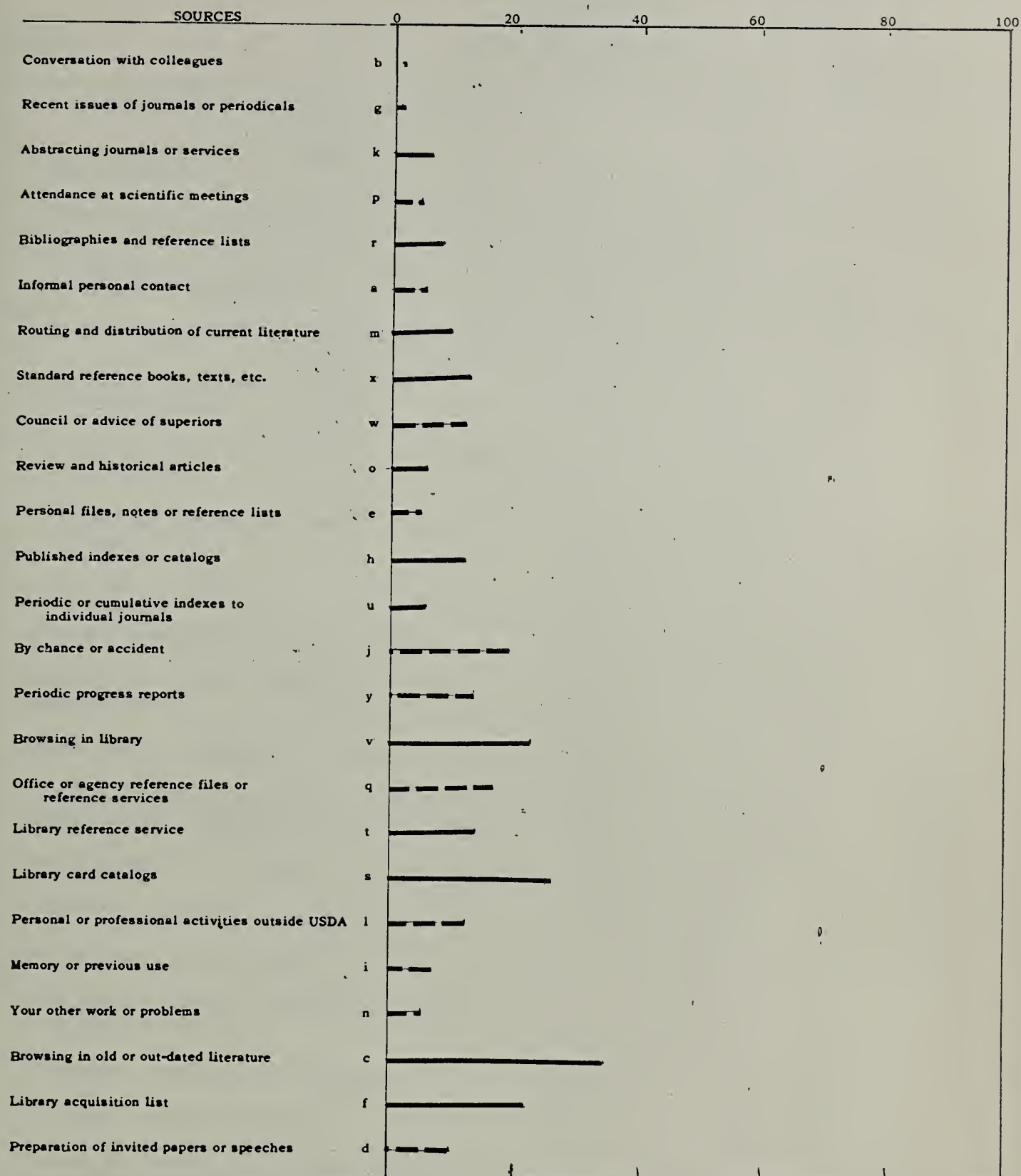
Percentage of respondents marking each source.





Question 10. Which sources (if any) have you tried to use but found to be of little value for finding information important to your research ?

Percentage of respondents marking each source



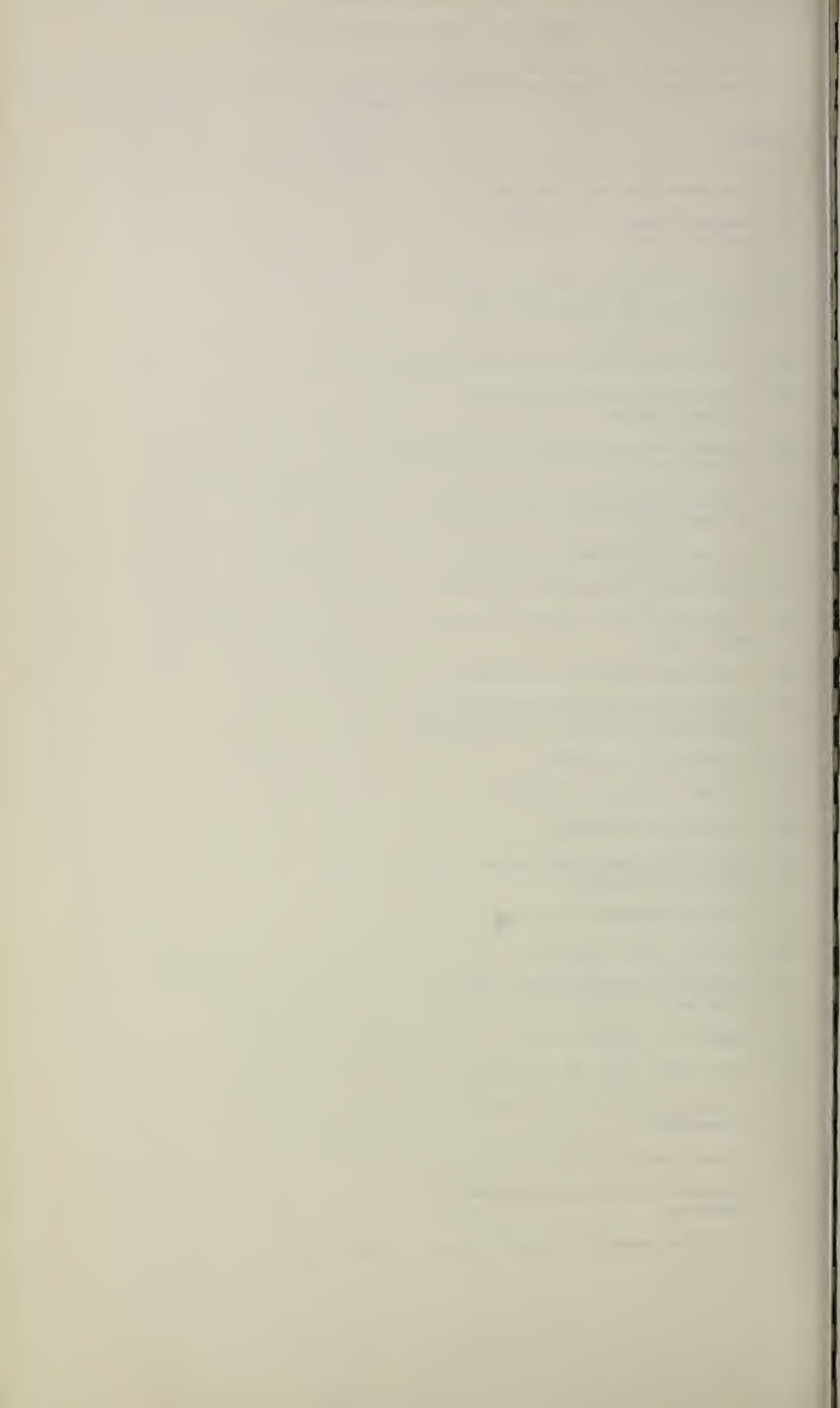




Composite Rank Percentage Score

Percentage Score		
Sources	Question 1 Available and used most	Composite for Questions - 2-7 and 9 1/
b. Conversations with colleagues	96	89
g. Recent issues of journals or periodicals	100	87
k. Abstracting journals or services	84	77
p. Attendance at scientific and technical meetings	88	74
r. Bibliographies and reference lists	72	70
a. Informal personal contact or correspondence	68	66
m. Routing and distribution of current literature	80	65
x. Standard reference books, texts or handbooks	92	62
w. Counsel or advice of superiors	56	62
o. Review and historical articles	32	57
e. Personal files, notes, or reference lists	76	54
h. Published indexes or catalogs	64	53
u. Periodic or cumulative indexes to individual journals or periodicals	60	53
j. By chance or accident	12	45
y. Periodic progress reports	36	43
v. Browsing in library	24	40
q. Office of agency reference files or reference services	28	39
t. Library reference services	44	39
s. Library card catalogs	48	38
l. Personal or professional activities outside USDA	20	37
i. Memory or previous use	52	34
n. Your other work or problems	4	34
c. Browsing in old or out-dated literature	8	32
f. Library acquisition list	40	25
d. Preparation of invited papers or speeches	16	23

1/ 100 represents rank 1 for all 7 questions -



REQUIREMENTS INQUIRY  
Source Rank for Each Question

Table R 14

Sources:	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q10
b. Conversations with colleagues	2	1	8	2	2	7	1	5	24
g. Recent issues of journals	1	2	3	1	1	14	8	1	25
k. Abstracting journals or services	5	10	2	6	5	8	14	2	18
p. Attendance at scientific meetings	4	3	18	3	3	19	2	4	22
r. Bibliographies and reference lists	8	17	1	9	7	3	16	6	15
a. Informal personal contact	9	5	16	5	8	18	3	11	19
m. Routing & distribution of current literature	6	7	17	4	6	21	10	3	14
x. Standard reference books	3	14	6	7	4	2	21	19	11
w. Counsel or advice of superiors	12	4	14	8	15	16	4	13	12
o. Review and historical articles	18	15	5	16	9	1	22	15	20
e. Personal files, notes, or reference lists	7	8	4	11	24	11	12	18	23
h. Published indexes or catalogs	10	22	9	14	14	5	18	7	9
u. Periodic or cumulative indexes to individual journals	11	20	7	10	11	9	24	9	17

Sources listed in order of importance of composite percentage score.



REQUIREMENTS INQUIRY  
Source Rank for Each Question (Cont.)

Table R 14 Cont.

Sources:	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q9	Q10
j. By chance or accident	23	9	24	12	12	17	7	22	5
y. Periodic progress reports	17	12	20	13	21	25	5	10	10
v. Browsing in library	20	16	19	18	10	12	25	12	3
q. Office or agency ref. files	19	21	11	20	19	13	13	16	6
t. Library reference services	15	23	12	22	16	10	17	14	7
s. Library card catalogs	14	25	10	21	13	6	20	20	2
l. Activities outside USDA	21	13	23	17	18	23	6	17	8
i. Memory or previous use	13	11	13	19	25	15	15	24	16
n. Your other work or problems	25	6	21	15	22	24	11	23	21
c. Browsing in old or out-dated lit.	24	18	15	24	17	4	23	25	1
f. Library acquisition list	16	24	22	23	20	22	19	8	4
d. Preparation of invited papers or speeches	22	19	25	25	23	20	19	21	13

Sources listed in order of importance of composite percentage score.





Proportion of Scientists in the Sample Marking a Source to Meet Various Information Requirements

Requirements for Access to Pubs.	All Respondents						
	Leads to New Materials			Retrospective		To Keep Abreast of Scientific Pubs. (Q9)	To Find Out About Research Prior to Publication (Q7)
Sources:	Ideas for New Projects (Q2)	Leads to New Methods Techniques (Q4)	Leads to Unfamiliar Subject Areas (Q5)	To Begin Search in a Project (Q3)	To Find Historical Materials (Q6)		
<b>Library Services:</b>							
Recent issues of journals or periodicals (g)	67	85	63	52	16	93	7
Abstracting journals or services (k)	20	35	39	54	29	54	2
Bibliographies and reference list (r)	9	23	34	56	48	29	1
Routing and distribution of current literature (m)	29	39	35	15	6	54	4
Standard reference books texts, or handbooks (x)	14	30	41	43	50	6	1
Review and historical articles (o)	13	12	30	45	65	10	1
Published indexes or catalogs (h)	6	14	21	40	33	23	1
Periodic or cumulative indexes to individual journals (u)	8	19	24	43	28	21	1
Browsing in library (v)	12	11	27	11	21	14	1
Library reference services (t)	5	9	17	25	23	10	1
Library card catalogs (s)	2	9	21	30	32	4	1
Browsing in old or out-dated literature (c)	9	4	16	16	41	0	1
Library acquisition list (f)	4	7	11	7	5	22	1
<b>Personal:</b>							
Conversation with colleagues (b)	75	72	57	40	31	37	85
Attendance at scientific and technical meetings (p)	61	61	44	13	8	46	73
Informal personal contact (a)	41	37	32	15	12	17	68
Counsel or advice of superiors (w)	42	28	21	22	13	13	30
Personal files, notes, or reference (e)	26	17	5	46	22	8	3
By chance or accident (j)	24	16	24	3	13	3	8
Periodic progress reports (y)	17	14	11	10	3	18	29
Office or agency reference files or services (q)	7	10	13	25	19	10	3
Personal or professional activities outside USDA (l)	17	12	14	5	4	8	22
Memory or previous use (i)	20	11	2	25	14	2	1
Your other work or problems (n)	37	13	8	10	3	2	4
Preparation of invited papers or speeches (d)	8	4	6	2	7	3	5





Proportion of Scientists in the Sample Marking a  
Source to Meet Various Information Requirements

Requirements for Access to Pubs.	Comparison of Junior and Senior Scientists													
	Leads to New Materials						Retrospective				To Keep Abreast of Scientific Pubs. (Q9)		To Find Out About Research Prior to Publication (Q7)	
Sources:	Ideas for New Projects (Q2)		Leads to New Methods Techniques (Q4)		Leads to Unfamiliar Subject Areas (Q5)		To Begin Search in a Project (Q3)		To find Historical Material (Q6)					
	Jr.	Sr.	Jr.	Sr.	Jr.	Sr.	Jr.	Sr.	Jr.	Sr.	Jr.	Sr.	Jr.	Sr.
Library Services:														
Recent issues of journals or periodicals (g)	64	70	85	85	64	63	55	50	17	15	93	92	7	7
Abstracting journals or services (k)	17	22	32	37	40	38	53	56	28	31	53	55	2	2
Bibliographies and reference list (r)	10	8	22	24	34	34	56	56	47	49	30	28	1	2
Routing and distribution of current literature (m)	29	30	39	39	39	31	17	13	6	6	56	52	5	4
Standard reference books texts, or handbooks (x)	15	13	32	28	40	41	44	43	46	52	6	5	1	1
Review and historical articles (o)	12	15	12	12	29	30	40	48	63	67	10	10	1	0
Published indexes or catalogs (h)	6	5	15	13	23	19	44	37	34	32	25	21	1	1
Periodic or cumulative indexes to individual journals (u)	11	6	21	17	26	21	48	39	28	28	25	18	1	0
Browsing in library (v)	11	13	9	12	27	27	11	10	22	20	14	14	0	1
Library reference services (t)	7	3	9	8	18	15	28	21	26	21	12	8	2	0
Library card catalogs (s)	3	1	9	9	21	21	35	27	33	32	6	3	1	0
Browsing in old or out- dated literature (c)	10	8	5	4	16	16	16	17	41	41	0	0	1	0
Library acquisition list (f)	4	4	9	6	12	10	9	6	6	4	23	20	1	1
Personal:														
Conversation with colleagues (b)	75	76	70	72	58	56	43	38	29	33	37	37	84	86
Attendance at scientific & technical meetings (p)	52	68	55	66	42	46	12	14	8	8	41	50	67	77
Informal personal contact (a)	38	44	34	40	29	34	15	14	12	12	16	18	62	74
Counsel or advice of superiors (w)	52	34	36	21	24	18	29	15	16	11	17	10	35	25
Personal files, notes, or reference (e)	25	27	18	16	6	5	43	49	22	21	11	6	4	2
By chance or accident (j)	25	24	18	15	25	22	5	1	17	10	4	2	6	10
Periodic progress reports (y)	16	19	12	16	9	12	11	10	3	3	19	17	29	29
Office or agency re- ference files or services (q)	6	7	11	9	12	13	25	25	19	18	11	9	3	3
Personal or professional activities outside USDA (l)	13	19	11	13	12	15	5	5	5	3	7	9	18	25
Memory or previous use (i)	20	20	13	9	3	1	23	26	12	16	2	1	1	1
Your other work or problems (n)	34	40	11	14	8	9	10	10	4	3	2	2	4	5
Preparation of invited papers or speeches (d)	5	11	2	5	5	7	1	3	6	9	2	4	4	6

NOTE: For each Source, the First Line is for Junior scientists and the Second Line for senior scientists.





Proportion of Scientists in the Sample Marking a  
Source to Meet Various Information Requirements

Requirements for Access to Pubs.	Comparison of Field and D. C. -Beltsville Scientists													
	Leads to New Materials						Retrospective							
	Ideas for New Projects (Q2)		Leads to New Methods Techniques (Q4)		Leads to Unfamiliar Subject Areas (Q5)		To Begin Search in a Project (Q3)		To Find Historical Material (Q6)		To Keep Abreast of Scientific Pubs. F (Q9)		To Find Out About Research Prior to Publication F (Q7)	
Sources:	Field	DC	Field	DC	Field	DC	Field	DC	Field	DC	Field	DC	Field	DC
<b>Library Services:</b>														
Recent issues of journals or periodicals (g)	69		87		63		54		16		95		6	
		61		78		64		47		15		87		11
Abstracting journals or service (k)	21		37		42		58		30		59		1	
		16		27		29		42		27		38		4
Bibliographies and reference list (r)	10		22		33		57		46		28		1	
		8		25		36		52		56		31		4
Routing and distribution of current literature (m)	29		40		35		15		6		54		4	
		32		34		33		14		6		54		7
Standard reference books texts, or handbooks (x)	14		29		41		45		48		5		1	
		13		32		39		38		55		9		1
Review and historical articles (o)	13		13		29		44		66		9		1	
		15		10		30		46		66		13		1
Published indexes or catalogs (h)	5		13		21		41		32		23		1	
		8		16		19		36		41		25		1
Periodic or cumulative indexes to individual journals (u)	9		20		24		46		27		21		0	
		6		14		21		33		31		23		1
Browsing in library (v)	12		11		27		10		21		13		0	
		13		10		28		13		22		15		1
Library reference services (t)	5		9		17		24		22		11		1	
		4		8		16		26		29		9		1
Library card catalogs (s)	1		8		20		29		29		4		1	
		5		11		25		27		46		7		2
Browsing in old or out- dated literature (c)	9		5		17		18		41		0		1	
		7		3		13		10		41		1		1
Library acquisition list (f)	4		8		11		8		5		23		1	
		3		6		8		6		5		16		1
<b>Personal:</b>														
Conversation with colleagues (b)	77		73		57		39		31		38		86	
		70		66		56		44		33		34		82
Attendance at scientific & technical meetings (p)	63		63		45		14		9		49		76	
		54		54		41		8		7		38		60
Informal personal contact (a)	43		37		32		14		13		17		67	
		36		35		30		17		9		15		72
Counsel or advice of superiors (w)	43		29		20		21		13		13		31	
		40		25		23		23		14		14		24
Personal files, notes, or reference (e)	26		18		5		44		22		8		4	
		26		13		6		53		21		10		2
By chance or accident (j)	26		17		24		3		14		2		6	
		17		13		22		3		8		5		13
Periodic progress reports (y)	18		16		11		11		3		19		31	
		15		8		9		7		1		13		22
Office or agency re- ference files or services (q)	5		8		11		22		15		9		3	
		12		15		19		36		31		15		4
Personal or professional activities outside USDA (l)	16		12		13		5		4		8		21	
		18		13		16		7		3		8		24
Memory or previous use (i)	20		11		2		24		12		1		1	
		20		10		0		28		20		3		1
Your other work or problems (n)	37		13		8		9		3		2		3	
		39		12		11		13		6		3		8
Preparation of invited papers or speeches (d)	8		4		6		2		7		3		6	
		8		3		7		1		9		3		3

NOTE: For each Source the First Line is for scientists Located in the Field and the Second Line for D. C. -Beltsville.



SUMMARY OF INQUIRY ON REQUIREMENTS

Tables 1 - 25

Sources listed in rank order for each question,  
by areas and by grade



WAYS OF GAINING ACCESS TO INFORMATION  
AS RELATED TO A PARTICULAR SOURCE  
AND RANK OF SOURCES

1

Sources 1/	Rank 2/	Total Responses For Each Source 3/ (100%)	Percent of Total Responses for each Source								
			Question Number 1/								
			1	2	3	4	5	6	7	9	
a	5	2076	18	15	6	14	12	4	25	6	
b	2	3640	15	16	9	15	12	7	18	8	
c	21	796	16	9	16	4	15	39	1	0	
d	25	423	35	15	3	7	12	13	9	6	
e	11	1418	29	14	26	9	3	12	2	5	
f	24	639	31	5	9	9	13	6	1	26	
g	1	3718	19	14	11	18	13	3	1	21	
h	13	1388	22	3	23	8	12	18	1	13	
i	19	851	31	18	23	10	2	13	1	2	
j	20	831	15	23	3	15	22	12	7	3	
k	4	2254	18	7	19	12	14	10	1	19	
l	22	785	19	16	5	12	14	4	22	8	
m	8	1848	24	12	6	16	15	2	2	23	
n	23	733	15	40	11	14	9	4	5	2	
o	10	1557	12	7	22	6	15	33	0	5	
p	3	2873	17	16	4	17	12	2	19	13	
q	18	864	22	6	23	9	12	16	3	9	
r	6	1936	19	4	22	9	14	19	1	12	
s	14	1021	24	2	23	7	16	24	1	3	
t	17	897	22	4	22	8	14	20	1	9	
u	12	1418	21	4	25	10	13	15	0	12	
v	16	926	19	10	9	9	24	17	0	12	
w	9	1610	18	20	11	14	10	6	14	7	
x	7	1928	25	6	18	12	17	20	0	2	
y	15	990	20	14	8	11	8	2	23	14	
No Answer		89	1	13	7	4	11	26	34	4	

1/ See page      for identification of sources and questions

2/ Rank determined by Total Responses for each source

3/ For each source this is the total of responses to questions 1 thru 7 and 9. Sources do not apply to question 8. Question 10 is omitted from the total as it is the negative, that is, sources of little value.





A list of potential sources of information appears after several of the questions in this section. The same list is used each time. Indicate your answers to each of these questions by marking one or more entries in the corresponding list. The source list is not exhaustive and some items may overlap or may not apply to all given questions. If in doubt, please mark all items which may be applicable in any given case.

Summary-- All Grades and All Areas  
Number of Responses

Question Number 1/

Sources	1.	2.	3.	4.	5.	6.	7.	9.	10.
a	359	321	116	290	246	92	520	132	21
b	557	586	316	562	444	237	649	289	5
c	126	68	128	33	123	313	4	1	133
d	146	64	13	29	50	56	40	25	38
e	426	202	362	132	41	165	24	66	14
f	202	29	57	57	83	36	6	160	85
g	717	522	411	671	493	122	53	729	3
h	317	43	314	108	162	256	7	181	48
i	276	154	193	84	14	107	10	13	27
j	127	187	24	127	134	100	60	32	77
k	429	154	427	273	305	226	15	35	22
l	151	429	40	94	106	32	167	3	49
m	428	229	114	304	270	46	34	3	35
n	122	290	79	100	66	26	34	3	19
o	192	105	350	95	231	500	5	72	21
p	494	472	101	480	345	64	554	365	15
q	192	53	196	79	100	142	23	79	65
r	373	72	439	180	264	370	10	228	31
s	243	17	239	69	164	248	6	35	99
t	202	36	193	68	129	179	9	81	54
u	303	63	336	146	185	214	4	167	24
v	179	93	83	87	210	161	4	109	92
w	297	330	170	220	161	101	226	105	45
x	499	110	341	233	316	380	5	44	47
y	200	136	82	113	82	20	219	138	48
No response	1	12	6	4	10	23	29	4	393

1/ See page for identification of sources and questions



SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS

SUMMARY -- FIELD

Number of Responses

Question Number 1/

Sources	1.	2.	3.	4.	5.	6.	7.	9.	10.
a.	275	256	86	226	193	77	398	104	19
b.	439	460	236	443	344	184	510	228	3
c.	104	56	109	28	100	247	3		109
d.	116	50	12	23	38	42	35	20	31
e.	323	156	266	108	30	132	21	48	14
f.	170	23	47	46	68	28	5	140	68
g.	555	412	326	529	379	98	35	571	1
h.	247	29	249	79	129	191	5	136	40
i.	108	115	142	56	14	75	3	7	22
j.	100	157	19	104	144	87	38	13	56
k.	350	125	351	924	254	183	8	356	13
l.	120	97	28	70	78	27	127	51	38
m.	330	172	39	243	212	36	23	325	24
n.	92	230	56	78	46	17	20	10	16
o.	144	79	267	76	177	395	3	55	17
p.	398	375	87	383	272	53	45	293	12
q.	129	32	131	51	67	93	17	52	56
r.	296	57	344	135	200	280	4	171	22
s.	180	8	172	49	120	175	3	23	75
t.	160	28	146	54	101	132	8	64	44
u.	243	52	276	121	147	164	2	126	18
v.	131	69	60	68	160	126	2	81	68
w.	231	259	129	174	120	79	185	79	34
x.	390	86	273	175	246	292	4	28	38
y.	162	110	69	98	66	18	182	115	36
No Response	1	7	3	1	4	20	14	2	299

1/ See page for identification of sources and questions.





SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS

SUMMARY -- WASHINGTON, D.C. and BELTSVILLE

Number of Responses

		Question Number 1/									
Sources		1.	2.	3.	4.	5.	6.	7.	9.	10.	
	a.	84	65	30	64	53	15	122	23	2	
	b.	118	126	80	119	100	53	139	61	2	
	c.	22	12	19	5	23	66	1	1	24	
	d.	30	14	1	6	12	14	5	5	7	
	e.	103	46	96	24	11	33	3	18	17	
	f.	32	6	10	11	15	8	1	29	2	
	g.	162	110	85	142	114	24	18	153	8	
	h.	70	14	65	29	33	65	2	45	8	
	i.	32	35	51	13	40	32	22	5	5	
	j.	27	30		23		13	2	9	21	
	k.	79	29	76	49	51	43	7	69	9	
	l.	31	32	12	24	28	5	40	15	11	
	m.	98	57	25	61	56	10	11	98	11	
	n.	30	70	23	22	20	9	14	5	3	
	o.	48	26	23	19	54	105	2	24	4	
	p.	96	97	14	97	73	11	102	70	3	
	q.	63	21	65	28	33	49	6	27	9	
	r.	77	15	95	45	64	90	6	57	9	
	s.	63	9	67	20	44	73	3	12	24	
	t.	42	8	47	14	28	47	1	17	10	
	u.	60	11	60	25	38	50	2	41	6	
	v.	48	24	23	19	50	35	2	28	24	
	w.	66	71	41	46	41	22	41	26	11	
	x.	109	24	68	58	70	88	1	16	9	
	y.	38	26	13	15	16	2	37	23	12	
No Response		5	3	3	3	6	3	15	2	94	

1/ See page for identification of sources and questions



SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS

SUMMARY -- JUNIOR - GRADES 7-11

Number of Responses

Question Number 1/										
Sources	1.	2.	3.	4.	5.	6.	7.	9.	10.	
a.	153	134	55	122	104	43	211	57	13	
b.	259	265	153	255	210	102	286	134	3	
c.	66	36	57	17	57	145	2		62	
d.	44	18	2	9	19	20	15	8	20	
e.	196	89	154	64	20	78	14	40	3	
f.	101	14	31	31	43	20	3	83	32	
g.	327	228	197	309	229	59	23	338		
h.	164	22	157	53	83	43	3	1	16	
i.	131	70	84	46	10	43	5	7	15	
j.	70	87	19	64	90	59	20	15	39	
k.	196	61	139	117	145	100	6	191	8	
l.	58	47	17	40	44	18	61	26	28	
m.	193	103	50	140	141	23	17	203	13	
n.	52	120	36	40	29	14	12	35	13	
o.	90	42	145	44	104	226	5		5	
p.	200	185	43	199	151	30	229	149	7	
q.	92	22	91	39	44	59	11	41	27	
r.	177	37	200	80	123	168	3	110	7	
s.	128	11	124	32	75	118	4	21	46	
t.	113	23	102	33	66	92	7	45	24	
u.	160	39	171	76	95	99	3	89	10	
v.	83	39	40	34	97	77	1	50	42	
w.	177	185	105	129	87	57	120	63	17	
x.	245	55	157	116	145	165	2	22	22	
y.	87	57	39	44	1	9	98	67	17	
No Response	1	9	5	2	4	7	231	2	187	

1/ See page for identification of sources and questions



## SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS

SUMMARY -- SENIOR -- GRADES 12 and over

Number of Responses

Question Number 1/

Sources	1.	2.	3.	4.	5.	6.	7.	9.	10.
a.	206	187	61	168	142	49	309	75	8
b.	298	321	163	307	234	135	363	155	2
c.	60	32	71	16	66	168	2	1	71
d.	102	46	11	20	31	36	25	17	18
e.	230	113	208	68	21	87	10	26	11
f.	101	15	26	26	40	16	3	86	53
g.	390	294	214	362	264	63	30	391	3
h.	153	21	157	55	79	133	4	90	32
i.	145	84	109	38	4	64	5	6	12
j.	57	100	5	63	94	41	40	7	38
k.	233	93	238	156	160	126	9	334	14
l.	93	82	23	54	92	14	106	40	21
m.	235	126	54	164	129	23	17	220	22
n.	70	170	43	60	37	12	22	7	6
o.	102	63	205	51	127	274	2	44	15
p.	294	287	58	281	194	34	325	214	8
q.	100	31	105	40	56	73	12	38	38
r.	196	35	239	100	141	202	7	118	24
s.	115	6	115	37	89	150	2	14	53
t.	89	11	91	35	63	87	2	36	30
u.	143	24	165	70	90	115	2	78	14
v.	96	54	43	53	113	84	3	59	50
w.	120	145	65	91	74	44	106	42	28
x.	254	55	184	117	171	215	3	22	25
y.	113	79	43	69	51	11	121	71	31
No Response		3	1	2	6	16	6	2	206

1/ See page for identification of sources and questions





SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS  
Question 1

7

Which sources are or have been available to you and have you used most?

		Number of Responses and Percentages 1/ by Area and Grade				
Rank	Sources:	Total	By Area		By Grade	
			Field	D.C. & Belts,	Junior 7-11	Senior 12 & over
1.	Recent issues of journals or periodicals	717 (91%)	555 (92%)	162 (88%)	327 (90%)	390 (92%)
2.	Conversations with colleagues	557 (71%)	439 (73%)	118 (64%)	259 (71%)	298 (70%)
3.	Standard reference books, texts, or handbooks	499 (63%)	390 (64%)	109 (59%)	245 (67%)	254 (60%)
4.	Attendance at scientific and technical meetings	494 (63%)	398 (66%)	96 (52%)	200 (55%)	294 (69%)
5.	Abstracting journals or services	429 (54%)	350 (58%)	79 (43%)	196 (54%)	233 (55%)
6.	Routing and distribution of current literature	428 (54%)	330 (55%)	98 (53%)	193 (53%)	235 (55%)
7.	Personal files, notes or reference lists	426 (54%)	323 (53%)	103 (56%)	196 (54%)	230 (54%)
8.	Bibliographies and reference lists	373 (47%)	296 (49%)	77 (42%)	177 (49%)	196 (46%)
9.	Informal personal contact or correspondence (other than with colleagues or at meetings)	359 (46%)	275 (45%)	84 (46%)	153 (42%)	206 (48%)
10.	Published indexes or catalogs	317 (40%)	247 (41%)	70 (38%)	164 (45%)	153 (36%)
11.	Periodic or cumulative indexes to individual journals or periodicals	303 (38%)	243 (40%)	60 (33%)	160 (44%)	143 (34%)
12.	Counsel or advice of superiors	297 (38%)	231 (38%)	66 (36%)	177 (49%)	120 (28%)
13.	Memory or previous use	276 (35%)	208 (34%)	68 (37%)	131 (36%)	145 (34%)
14.	Library card catalogs	243 (31%)	180 (30%)	63 (34%)	128 (35%)	115 (27%)
15.	Library reference services	202 (26%)	160 (26%)	42 (23%)	113 (31%)	89 (21%)
16.	Library acquisition lists	202 (26%)	170 (28%)	32 (17%)	101 (28%)	101 (24%)
17.	Periodic progress reports	200 (25%)	162 (27%)	38 (21%)	87 (24%)	113 (27%)
18.	Review and historical articles	192 (24%)	144 (24%)	48 (26%)	90 (25%)	102 (24%)
19.	Office or agency reference files or reference services	192 (24%)	129 (21%)	63 (34%)	92 (25%)	100 (23%)



		By Area		By Grade		
		Field	D.C.& Belts.	Junior 7-11	Senior 12 & over	
		Total				
20.	Browsing in library	179 (23%)	131 (22%)	48 (26%)	83 (23%)	96 (23%)
21.	Personal or professional activities outside USDA	151 (19%)	120 (20%)	31 (17%)	58 (16%)	93 (22%)
22.	Preparation of invited papers or speeches	146 (19%)	116 (19%)	30 (16%)	44 (12%)	102 (24%)
23.	By chance or accident (as while looking for something else)	127 (16%)	100 (17%)	27 (15%)	70 (19%)	57 (13%)
24.	Browsing in old or out-dated literature	126 (16%)	104 (17%)	22 (12%)	66 (18%)	60 (14%)
25.	Your other work or problems	122 (15%)	92 (15%)	30 (16%)	52 (14%)	70 (16%)
	No Answer	1	1	-	1	-

1/ Response to each source as percent of total respondents





## Question 2

Through which sources have you found ideas for new projects or investigations?

Rank	Sources:	Number of Responses and Percentages <sup>1/</sup> by Area and Grade				
		Total	By Area		By Grade	
			Field	D.C. & Belts.	Junior 7-11	Senior 12&over
1.	Conversations with colleagues	586 (75%)	460 (77%)	126 (70%)	265 (75%)	321 (76%)
2.	Recent issues of journals or periodicals	522 (67%)	412 (69%)	110 (61%)	228 (64%)	294 (70%)
3.	Attendance at scientific and technical meetings	472 (61%)	375 (63%)	97 (54%)	185 (52%)	287 (68%)
4.	Counsel or advice of superiors	330 (42%)	259 (43%)	71 (40%)	185 (52%)	145 (34%)
5.	Informal personal contact or correspondence (other than with colleagues or at meetings)	321 (41%)	256 (43%)	65 (36%)	134 (38%)	187 (44%)
6.	Your other work or problems	290 (37%)	220 (37%)	70 (39%)	120 (34%)	170 (40%)
7.	Routing and distribution of current literature	229 (29%)	172 (29%)	57 (32%)	103 (29%)	126 (30%)
8.	Personal files, notes, or reference lists	202 (26%)	156 (26%)	46 (26%)	89 (25%)	113 (27%)
9.	By chance or accident (as while looking for something else)	187 (24%)	157 (26%)	30 (17%)	87 (25%)	100 (24%)
10.	Abstracting journals or services	154 (20%)	125 (21%)	29 (16%)	61 (17%)	93 (22%)
11.	Memory or previous use	154 (20%)	119 (20%)	35 (20%)	70 (20%)	84 (20%)
12.	Periodic progress reports	136 (17%)	110 (18%)	26 (15%)	57 (16%)	79 (19%)
13.	Personal or professional activities outside USDA	129 (17%)	97 (16%)	32 (18%)	47 (13%)	82 (19%)
14.	Standard reference books, texts, or handbooks	110 (14%)	86 (14%)	24 (13%)	55 (15%)	55 (13%)
15.	Review and historical articles	105 (13%)	79 (13%)	26 (15%)	42 (12%)	63 (15%)
16.	Browsing in library	93 (12%)	69 (12%)	24 (13%)	39 (11%)	54 (13%)
17.	Bibliographies and reference lists	72 (9%)	57 (10%)	15 (8%)	37 (10%)	35 (8%)
18.	Browsing in old or out-dated literature	68 (9%)	56 (9%)	12 (7%)	36 (10%)	32 (8%)
19.	Preparation of invited papers or speeches	64 (8%)	50 (8%)	14 (8%)	18 (5%)	46 (11%)



		Number of Responses and Percentages <sup>1/</sup> by Area and Grade				
Rank	Sources:	Total	By Area		By Grade	
			Field	D.C.& Belts.	Junior 7-11	Senior 12&over
20.	Periodic or cumulative indexes to individual journals or periodicals	63 (8%)	52 (9%)	11 (6%)	39 (11%)	24 (6%)
21.	Office or agency reference files or reference services	53 (7%)	32 (5%)	21 (12%)	22 (6%)	31 (7%)
22.	Published indexes or catalogs	43 (6%)	29 (5%)	14 (8%)	22 (6%)	21 (5%)
23.	Library references services	36 (5%)	28 (5%)	8 (4%)	25 (7%)	11 (3%)
24.	Library acquisition list	29 (4%)	23 (4%)	6 (3%)	14 (4%)	15 (4%)
25.	Library card catalogs	17 (2%)	8 (1%)	9 (5%)	11 (3%)	6 (1%)
	No Answer	12	7	5	9	3

<sup>1/</sup> Response to each source as percent of total respondents





What sources have been most useful to you when beginning a retrospective search for information pertinent to a project or subject area?

Number of Responses and Percentages 1/  
by Area and Grade

Rank	Sources:	Total	By Area		By Grade	
			Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
1.	Bibliographies and reference lists	439 (56%)	344 (57%)	95 (52%)	200 (56%)	239 (56%)
2.	Abstracting journals or services	427 (54%)	351 (58%)	76 (42%)	189 (53%)	238 (56%)
3.	Recent issues of journals or periodicals	411 (52%)	326 (54%)	85 (47%)	197 (55%)	214 (50%)
4.	Personal files, notes, or reference lists	362 (46%)	266 (44%)	96 (53%)	154 (43%)	208 (49%)
5.	Review and historical articles	350 (45%)	267 (44%)	83 (46%)	145 (40%)	205 (48%)
6.	Standard reference books, texts, or handbooks	341 (43%)	273 (45%)	68 (38%)	157 (44%)	184 (43%)
7.	Periodic or cumulative indexes to individual journals or periodicals	336 (43%)	376 (46%)	60 (33%)	171 (48%)	165 (39%)
8.	Conversations with colleagues	316 (40%)	236 (39%)	80 (44%)	153 (43%)	163 (38%)
9.	Published indexes or catalogs	314 (40%)	249 (41%)	65 (36%)	157 (44%)	157 (37%)
10.	Library card catalogs	239 (30%)	172 (29%)	67 (37%)	124 (35%)	115 (27%)
11.	Office or agency reference files or reference services	196 (25%)	131 (22%)	65 (36%)	91 (25%)	105 (25%)
12.	Library reference services	193 (25%)	146 (24%)	47 (26%)	102 (28%)	91 (21%)
13.	Memory or previous use	193 (25%)	142 (24%)	51 (28%)	84 (23%)	109 (26%)
14.	Counsel or advice or superiors	170 (22%)	129 (21%)	41 (23%)	105 (29%)	65 (15%)
15.	Browsing in old or out-dated literature	128 (16%)	109 (18%)	19 (10%)	57 (16%)	71 (17%)
16.	Informal personal contact or correspondence (other than with colleagues or at meetings)	116 (15%)	86 (14%)	30 (17%)	55 (15%)	61 (14%)
17.	Routing and distribution of current literature	114 (15%)	89 (15%)	25 (14%)	60 (17%)	54 (13%)
18.	Attendance at scientific and technical meetings	101 (13%)	87 (14%)	14 (8%)	43 (12%)	58 (14%)





		Number of Responses and Percentages <sup>1/</sup> By Area and Grade				
Rank	Sources:	By Area			By Grade	
		Total	Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
19.	Browsing in library	83 (11%)	60 (10%)	23 (13%)	40 (11%)	43 (10%)
20.	Periodic progress reports	82 (10%)	69 (11%)	13 (7%)	39 (11%)	43 (10%)
21.	Your other work or problems	79 (10%)	56 (9%)	23 (13%)	36 (10%)	43 (10%)
22.	Library acquisition list	57 (7%)	47 (8%)	10 (6%)	31 (9%)	26 (6%)
23.	Personal or professional activities outside USDA	40 (5%)	28 (5%)	12 (7%)	17 (5%)	23 (5%)
24.	By chance or accident (as while looking for something else)	24 (3%)	19 (3%)	5 (3%)	19 (5%)	5 (1%)
25.	Preparation of invited papers or speeches	13 (2%)	12 (2%)	1 (1%)	2 (1%)	11 (3%)
	No Answer	6	3	3	5	1

<sup>1/</sup> Response to each source as percent of total respondents



What sources have led you to new and useful information about methods, techniques or procedures?

		Number of Responses and Percentages 1/ By Area and Grade				
Rank	Sources:	Total	By Area		By Grade	
			Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
1.	Recent issues of journals or periodicals	671 (85%)	529 (87%)	142 (78%)	309 (85%)	362 (85%)
2.	Conversations with colleagues	562 (72%)	443 (73%)	119 (66%)	255 (70%)	307 (72%)
3.	Attendance at scientific and technical meetings	480 (61%)	383 (63%)	97 (54%)	199 (55%)	281 (66%)
4.	Routing and distribution of current literature	304 (39%)	243 (40%)	61 (34%)	140 (39%)	164 (39%)
5.	Informal personal contact or correspondence (other than with colleagues or at meetings)	290 (37%)	226 (37%)	64 (35%)	122 (34%)	168 (40%)
6.	Abstracting journals or services	273 (35%)	224 (37%)	49 (27%)	117 (32%)	156 (37%)
7.	Standard reference books, texts, or handbooks	233 (30%)	175 (29%)	58 (32%)	116 (32%)	117 (28%)
8.	Counsel or advice of superiors	220 (28%)	174 (29%)	46 (25%)	129 (36%)	91 (21%)
9.	Bibliographies or reference lists	180 (23%)	135 (22%)	45 (25%)	80 (22%)	100 (24%)
10.	Periodic or cumulative indexes to individual journals or periodicals	146 (19%)	121 (20%)	25 (14%)	76 (21%)	70 (17%)
11.	Personal files, notes, or reference lists	132 (17%)	108 (18%)	24 (13%)	64 (18%)	68 (16%)
12.	By chance or accident (as while looking for something else)	127 (16%)	104 (17%)	23 (13%)	64 (18%)	63 (15%)
13.	Periodic progress reports	113 (14%)	98 (16%)	15 (8%)	44 (12%)	69 (16%)
14.	Published indexes or catalogs	108 (14%)	79 (13%)	29 (16%)	53 (15%)	55 (13%)
15.	Your other work or problems	100 (13%)	78 (13%)	22 (12%)	40 (11%)	60 (14%)
16.	Review and historical articles	95 (12%)	76 (13%)	19 (10%)	44 (12%)	51 (12%)
17.	Personal or professional activities outside USDA	94 (12%)	70 (12%)	24 (13%)	40 (11%)	54 (13%)
18.	Browsing in library	87 (11%)	68 (11%)	19 (10%)	34 (9%)	53 (12%)





		Number of Responses and Percentages <u>1/</u>				
		By Area and Grade				
		By Area			By Grade	
Rank	Sources:	Total	Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
19.	Memory or previous use	84 (11%)	66 (11%)	18 (10%)	46 (13%)	38 (9%)
20.	Office or agency reference files or reference services	79 (10%)	51 (8%)	28 (15%)	39 (11%)	40 (9%)
21.	Library card catalogs	69 (9%)	49 (8%)	20 (11%)	32 (9%)	37 (9%)
22.	Library reference services	68 (9%)	54 (9%)	14 (8%)	33 (9%)	35 (8%)
23.	Library acquisition list	57 (7%)	46 (8%)	11 (6%)	31 (9%)	26 (6%)
24.	Browsing in old or out-dated literature	33 (4%)	28 (5%)	5 (3%)	17 (5%)	16 (4%)
25.	Preparation of invited papers or speeches	29 (4%)	23 (4%)	6 (3%)	9 (2%)	20 (5%)
	No Answer	4	1	3	2	2

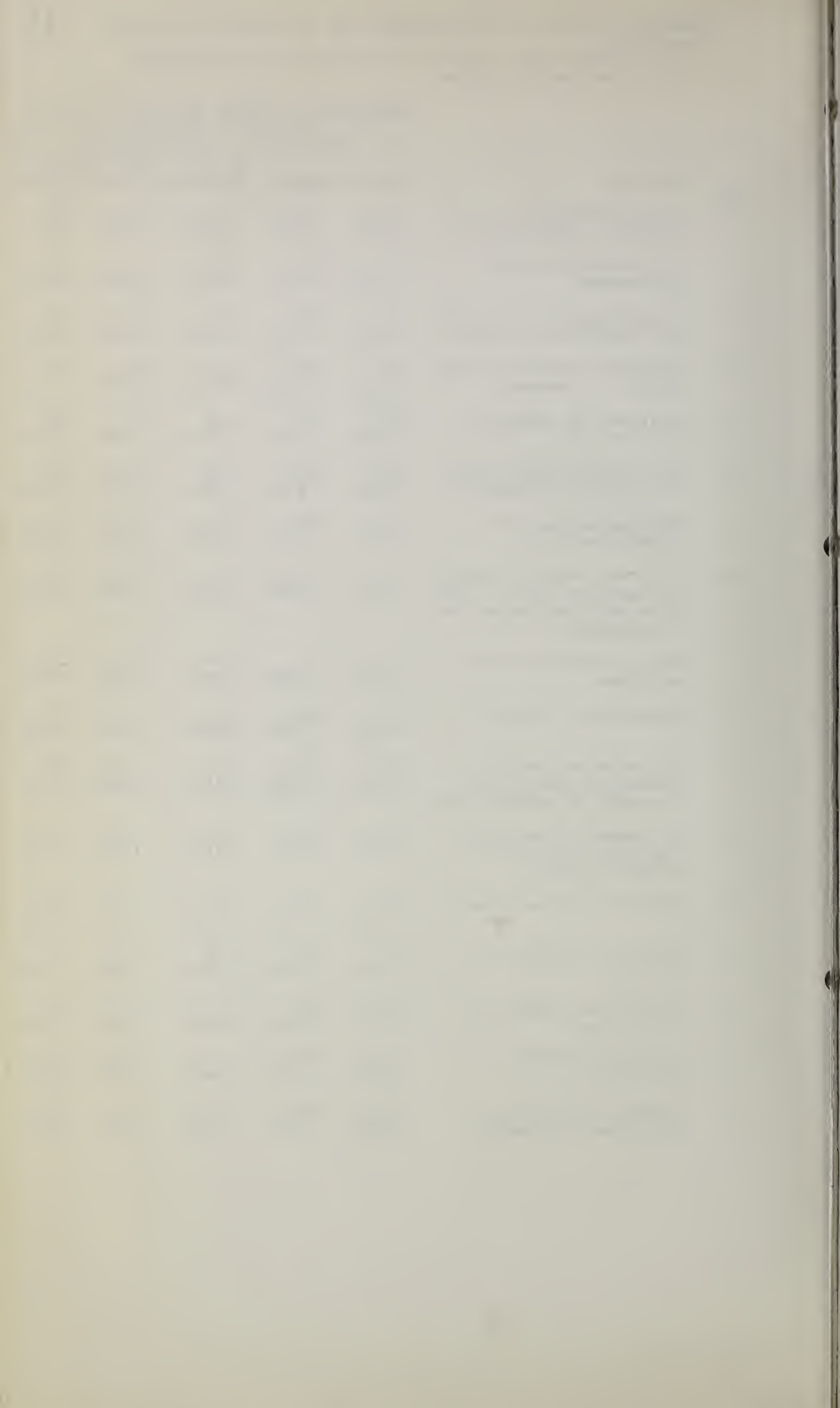
1/ Response to each source as percent of total respondents



## Question 5

What sources have led you to information in previously unfamiliar subject areas?

		Number of Responses and Percentages 1/ By Area and Grade				
Rank	Sources:	Total	By Area		By Grade	
			Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
1.	Recent issues of journals or periodicals	493 (63%)	379 (63%)	114 (64%)	229 (64%)	264 (63%)
2.	Conversations with colleagues	444 (57%)	344 (57%)	100 (56%)	210 (58%)	234 (56%)
3.	Attendance at scientific and technical meetings	345 (44%)	272 (45%)	73 (41%)	151 (42%)	194 (46%)
4.	Standard reference books, texts, or handbooks	316 (41%)	246 (41%)	70 (39%)	145 (40%)	171 (41%)
5.	Abstracting journals or services	305 (39%)	254 (42%)	51 (29%)	145 (40%)	160 (38%)
6.	Routing and distribution of current literature	270 (35%)	212 (35%)	58 (33%)	141 (39%)	129 (31%)
7.	Bibliographies and reference lists	264 (34%)	200 (33%)	64 (36%)	123 (34%)	141 (34%)
8.	Informal personal contact or correspondence (other than with colleagues or at meetings)	246 (32%)	193 (32%)	53 (30%)	104 (29%)	142 (34%)
9.	Review and historical articles	231 (30%)	177 (29%)	54 (30%)	104 (29%)	127 (30%)
10.	Browsing in library	210 (27%)	160 (27%)	50 (28%)	97 (27%)	113 (27%)
11.	Periodic or cumulative indexes to individual journals or periodicals	185 (24%)	147 (24%)	38 (21%)	95 (26%)	90 (21%)
12.	By chance or accident (as while looking for something else)	184 (24%)	144 (24%)	40 (22%)	90 (25%)	94 (22%)
13.	Library card catalogs	164 (21%)	120 (20%)	44 (25%)	75 (21%)	89 (21%)
14.	Published indexes or catalogs	162 (21%)	129 (21%)	33 (19%)	83 (23%)	79 (19%)
15.	Counsel or advice of superiors	161 (21%)	120 (20%)	41 (23%)	87 (24%)	74 (18%)
16.	Library reference services	129 (17%)	101 (17%)	28 (16%)	66 (18%)	63 (15%)
17.	Browsing in old or out-dated literature	123 (16%)	100 (17%)	23 (13%)	57 (16%)	66 (16%)



		Number of Responses and Percentages <u>1/</u> By Area and Grade				
		By Area			By Grade	
		Total	Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
Rank	Sources:					
18.	Personal or professional activities outside USDA	106 (14%)	78 (13%)	28 (16%)	44 (12%)	62 (15%)
19.	Office or agency reference files or reference services	100 (13%)	67 (11%)	33 (19%)	44 (12%)	56 (13%)
20.	Library acquisition list	83 (11%)	68 (11%)	15 (8%)	43 (12%)	40 (10%)
21.	Periodic progress reports	82 (11%)	66 (11%)	16 (9%)	31 (9%)	51 (12%)
22.	Your other work or problems	66 (8%)	46 (8%)	20 (11%)	29 (8%)	37 (9%)
23.	Preparation of invited papers or speeches	50 (6%)	38 (6%)	12 (7%)	19 (5%)	31 (7%)
24.	Personal files, notes, or reference lists	41 (5%)	30 (5%)	11 (6%)	20 (6%)	21 (5%)
25.	Memory or previous use	14 (2%)	14 (2%)	0 (0)	10 (3%)	4 (1%)
	No Answer	10	4	6	4	6

1/ Response to each source as percent of total respondents





## Question 6

What sources have helped you to find useful historical material?

		Number of Responses and Percentages 1/				
		By Area and Grade				
		By Area			By Grade	
Rank	Sources:	Total	Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
1.	Review and historical articles	500 (65%)	395 (66%)	105 (66%)	226 (63%)	274 (67%)
2.	Standard reference books, texts, or handbooks	380 (50%)	292 (48%)	88 (55%)	165 (46%)	215 (52%)
3.	Bibliographies and reference lists	370 (48%)	280 (46%)	90 (56%)	168 (47%)	202 (49%)
4.	Browsing in old or out-dated literature	313 (41%)	247 (41%)	66 (41%)	145 (41%)	168 (41%)
5.	Published indexes or catalogs	256 (33%)	191 (32%)	65 (41%)	123 (34%)	133 (32%)
6.	Library card catalogs	248 (32%)	175 (29%)	73 (46%)	118 (33%)	130 (32%)
7.	Conversations with colleagues	237 (31%)	184 (31%)	53 (33%)	102 (29%)	135 (33%)
8.	Abstracting journals or services	226 (29%)	183 (30%)	43 (27%)	100 (28%)	126 (31%)
9.	Periodic or cumulative indexes to individual journals or periodicals	214 (28%)	164 (27%)	50 (31%)	99 (28%)	115 (28%)
10.	Library reference services	179 (23%)	132 (22%)	47 (29%)	92 (26%)	87 (21%)
11.	Personal files, notes, or reference lists	165 (22%)	132 (22%)	33 (21%)	78 (22%)	87 (21%)
12.	Browsing in library	161 (21%)	126 (21%)	35 (22%)	77 (22%)	84 (20%)
13.	Office or agency reference files or reference services	142 (19%)	93 (15%)	49 (31%)	69 (19%)	73 (18%)
14.	Recent issues of journals or periodicals	122 (16%)	98 (16%)	24 (15%)	59 (17%)	63 (15%)
15.	Memory or previous use	107 (14%)	75 (12%)	32 (20%)	43 (12%)	64 (16%)
16.	Counsel or advice of superiors	101 (13%)	79 (13%)	22 (14%)	57 (16%)	44 (11%)
17.	By chance or accident (as while looking for something else)	100 (13%)	87 (14%)	13 (8%)	59 (17%)	41 (10%)
18.	Informal personal contact or correspondence (other than with colleagues or at meetings)	92 (12%)	77 (13%)	15 (9%)	43 (12%)	49 (12%)



Number of Responses and Percentages 1/  
By Area and Grade

	Sources:	Total	By Area		By Grade	
			Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
Rank						
19.	Attendance at scientific and technical meetings	64 (8%)	53 (9%)	11 (7%)	30 (8%)	34 (8%)
20.	Preparation of invited papers or speeches	56 (7%)	42 (7%)	14 (9%)	20 (6%)	36 (9%)
21.	Routing and distribution of current literature	46 (6%)	36 (6%)	10 (6%)	23 (6%)	23 (6%)
22.	Library acquisition list	36 (5%)	28 (5%)	8 (5%)	20 (6%)	16 (4%)
23.	Personal or professional activities outside USDA	32 (4%)	27 (4%)	5 (3%)	18 (5%)	14 (3%)
24.	Your other work or problems	26 (3%)	17 (3%)	9 (6%)	14 (4%)	12 (3%)
25.	Periodic progress reports	20 (3%)	18 (3%)	2 (1%)	9 (3%)	11 (3%)
	No Answer	23	20	3	7	16

1/ Response to each source as percent of total respondents





In cases you can recall, through what sources have you found out about work of other scientists pertinent to your own research before their results were published?

		Number of Responses and Percentages <sup>1/</sup> By Area and Grade				
		By Area			By Grade	
Rank	Sources:	Total	Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
1.	Conversations with colleagues	649 (85%)	510 (86%)	139 (82%)	286 (84%)	363 (86%)
2.	Attendance at scientific and technical meetings	554 (73%)	452 (76%)	102 (60%)	229 (67%)	325 (77%)
3.	Informal personal contact or correspondence (other than with colleagues or at meetings)	520 (68%)	398 (67%)	122 (72%)	211 (62%)	309 (74%)
4.	Counsel or advice of superiors	226 (30%)	185 (31%)	41 (24%)	120 (35%)	106 (25%)
5.	Periodic progress reports	219 (29%)	182 (31%)	37 (22%)	98 (29%)	121 (29%)
6.	Personal or professional activities outside USDA	167 (22%)	127 (21%)	40 (24%)	61 (18%)	106 (25%)
7.	By chance or accident (as while looking for something else)	60 (8%)	38 (6%)	22 (13%)	20 (6%)	40 (10%)
8.	Recent issues of journals or periodicals	53 (7%)	35 (6%)	18 (11%)	23 (7%)	30 (7%)
9.	Preparation of invited papers or speeches	40 (5%)	35 (6%)	5 (3%)	15 (4%)	25 (6%)
10.	Routing and distribution of current literature	34 (4%)	23 (4%)	11 (7%)	17 (5%)	17 (4%)
11.	Your other work or problems	34 (4%)	20 (3%)	14 (8%)	12 (4%)	22 (5%)
12.	Personal files, notes, or reference lists	24 (3%)	21 (4%)	3 (2%)	14 (4%)	10 (2%)
13.	Office or agency reference files or reference services	23 (3%)	17 (3%)	6 (4%)	11 (3%)	12 (3%)
14.	Abstracting journals or services	15 (2%)	8 (1%)	7 (4%)	6 (2%)	9 (2%)
15.	Memory or previous use	10 (1%)	8 (1%)	2 (1%)	5 (1%)	5 (1%)
16.	Bibliographies and reference lists	10 (1%)	4 (1%)	6 (4%)	3 (1%)	7 (2%)
17.	Library reference services	9 (1%)	8 (1%)	1 (1%)	7 (2%)	2 (0)



		Number of Responses and Percentages <sup>1/</sup> By Area and Grade				
		By Area			By Grade	
Rank	Sources:	Total	Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
18.	Published indexes or catalogs	7 (1%)	5 (1%)	2 (1%)	3 (1%)	4 (1%)
19.	Library acquisition list	6 (1%)	5 (1%)	1 (1%)	3 (1%)	3 (1%)
20.	Library card catalogs	6 (1%)	3 (1%)	3 (2%)	4 (1%)	2 (0)
21.	Standard reference books, texts, or handbooks	5 (1%)	4 (1%)	1 (1%)	2 (1%)	3 (1%)
22.	Review and historical articles	5 (1%)	3 (1%)	2 (1%)	3 (1%)	2 (0)
23.	Browsing in old or out-dated literature	4 (1%)	3 (1%)	1 (1%)	2 (1%)	2 (0)
24.	Periodic or cumulative indexes to individual journals or periodicals	4 (1%)	2 (0)	2 (1%)	2 (1%)	2 (0)
25.	Browsing in library	4 (1%)	2 (0)	2 (1%)	1 (0)	3 (1%)
	No Answer	29	14	15	23	6

<sup>1/</sup> Response to each source as percent of total respondents



SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS  
Question 8

About how much time seems to you to elapse between the time you find out about such work and the time results are published?

1-6 months ☒      7-12 months ☒      13-18 months ☒  
19-24 months ☒      longer ☒

Number of Responses and Percentages  
By Area and Grade

Time - Months	Total	Area		Grade	
		Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
Number of Responses					
1 - 6	92	64	28	46	46
7 - 12	322	250	72	132	190
13 - 18	230	186	44	108	122
19 - 24	98	78	20	48	50
Longer	49	37	12	19	30
Total Responses	791	615	176	353	438
Total Respond- ents to question 8 <u>1/</u>	728	566	162	328	400
No Answer	62	40	22	36	26
Percent of Total Respondents					
	%	%	%	%	%
1 - 6	13	11	17	14	12
7 - 12	44	44	44	40	48
13 - 18	32	33	27	33	30
19 - 24	13	14	12	15	12
Longer	7	7	7	6	8
Total Responses	109	109	107	108	110

1/ The total of responses is more than the total of respondents as several time boxes could be marked by one respondent.





## Question 9

Upon which sources do you most rely for keeping currently abreast of scientific publications in your area of interest or research?

Rank	Sources:	Number of Responses and Percentages 1/ By Area and Grade				
		Total	By Area		By Grade	
			Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
1.	Recent issues of journals or periodicals	729 (93%)	571 (95%)	158 (87%)	338 (93%)	391 (92%)
2.	Abstracting journals or services	425 (54%)	356 (59%)	69 (38%)	191 (53%)	234 (55%)
3.	Routing and distribution of current literature	423 (54%)	325 (54%)	98 (54%)	203 (56%)	220 (52%)
4.	Attendance at scientific and technical meetings	363 (46%)	293 (49%)	70 (38%)	149 (41%)	214 (50%)
5.	Conversations with colleagues	289 (37%)	228 (38%)	61 (34%)	134 (37%)	155 (37%)
6.	Bibliographies and reference lists	228 (29%)	171 (28%)	57 (31%)	110 (30%)	118 (28%)
7.	Published indexes or catalogs	181 (23%)	136 (23%)	45 (25%)	91 (25%)	90 (21%)
8.	Library acquisition list	169 (22%)	140 (23%)	29 (16%)	83 (23%)	86 (20%)
9.	Periodic or cumulative indexes to individual journals or periodicals	167 (21%)	126 (21%)	41 (23%)	89 (25%)	78 (18%)
10.	Periodic progress reports	138 (18%)	115 (19%)	23 (13%)	67 (19%)	71 (17%)
11.	Informal personal contact or correspondence (other than with colleagues or at meetings)	132 (17%)	104 (17%)	28 (15%)	57 (16%)	75 (18%)
12.	Browsing in library	109 (14%)	81 (13%)	28 (15%)	50 (14%)	59 (14%)
13.	Counsel or advice of superiors	105 (13%)	79 (13%)	26 (14%)	63 (17%)	42 (10%)
14.	Library reference services	81 (10%)	64 (11%)	17 (9%)	45 (12%)	36 (8%)
15.	Review and historical articles	79 (10%)	55 (9%)	24 (13%)	35 (10%)	44 (10%)
16.	Office or agency reference files or reference services	79 (10%)	52 (9%)	27 (15%)	41 (11%)	38 (9%)
17.	Personal or professional activities outside USDA	66 (8%)	51 (8%)	15 (8%)	26 (7%)	40 (9%)



		Number of Responses and Percentages <u>1/</u> By Area and Grade				
		Total	By Area		By Grade	
<u>Sources:</u>			Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
Rank						
18.	Personal files, notes, or reference lists	66 (8%)	48 (8%)	18 (10%)	40 (11%)	26 (6%)
19.	Standard reference books, texts, or handbooks	44 (6%)	23 (5%)	15 (9%)	22 (6%)	22 (5%)
20.	Library card catalogs	35 (4%)	23 (4%)	12 (7%)	21 (6%)	14 (3%)
21.	Preparation of invited papers or speeches	25 (3%)	20 (3%)	5 (3%)	8 (2%)	17 (4%)
22.	By chance or accident (as while looking for some- thing else)	22 (3%)	13 (2%)	9 (5%)	15 (4%)	7 (2%)
23.	Your other work or problems	16 (2%)	10 (2%)	6 (3%)	9 (2%)	7 (2%)
24.	Memory or previous use	13 (2%)	7 (1%)	6 (3%)	7 (2%)	6 (1%)
25.	Browsing in old or out-dated literature	1 (0)	0 (0)	1 (1%)	0 (0)	1 (0)
	No Answer	4	2	2	2	2

<sup>1/</sup> Response to each source as percent of total respondents





SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS  
Question 10.

Which sources (if any) have you tried to use but found to be of little value for finding information important to your research?

		Number of Responses and Percentages 1/ by Area and Grade				
		By Area			By Grade	
		Total	Field	D.C. & Belts.	Junior 7-11	Senior 12 & over
Rank	Sources:					
1.	Browsing in old or out-dated literature	133 (34%)	109 (36%)	24 (27%)	62 (35%)	71 (32%)
2.	Library card catalogs	99 (25%)	75 (24%)	24 (27%)	46 (26%)	53 (24%)
3.	Browsing in library	92 (23%)	68 (22%)	24 (27%)	42 (24%)	50 (23%)
4.	Library acquisition list	85 (21%)	68 (22%)	17 (19%)	32 (18%)	53 (24%)
5.	By chance or accident (as while looking for something else)	77 (19%)	56 (18%)	21 (23%)	39 (22%)	38 (17%)
6.	Office or agency reference files or reference services	65 (16%)	56 (18%)	9 (10%)	27 (15%)	38 (17%)
7.	Library reference services	54 (14%)	44 (14%)	10 (11%)	24 (14%)	30 (14%)
8.	Personal or professional activities outside USDA	49 (12%)	38 (12%)	11 (12%)	28 (16%)	21 (10%)
9.	Published indexes or catalogs	48 (12%)	40 (13%)	8 (9%)	16 (9%)	32 (15%)
10.	Periodic progress reports	48 (12%)	36 (12%)	12 (13%)	17 (10%)	31 (14%)
11.	Standard reference books, texts, or handbooks	47 (12%)	38 (12%)	9 (10%)	22 (12%)	25 (11%)
12.	Counsel or advice of superiors	45 (11%)	34 (11%)	11 (12%)	17 (10%)	28 (13%)
13.	Preparation of invited papers or speeches	38 (10%)	31 (10%)	7 (8%)	20 (11%)	18 (8%)
14.	Routing and distribution of current literature	35 (9%)	24 (8%)	11 (12%)	13 (7%)	22 (10%)
15.	Bibliographies and reference lists	31 (8%)	22 (7%)	9 (10%)	7 (4%)	24 (11%)
16.	Memory or previous use	27 (7%)	22 (7%)	5 (6%)	15 (8%)	12 (5%)
17.	Periodic or cumulative indexes to individual journals or periodicals	24 (6%)	18 (6%)	6 (7%)	10 (6%)	14 (6%)



SUMMARY OF INQUIRY ON REQUIREMENTS OF USDA RESEARCH WORKERS  
Question 10

cont.

		Number of Responses and Percentages <u>1/</u> by Area and Grade				
		Total	By Area		By Grade	
Sources:			Field	D.C.& Belts.	Junior 7-11	Senior 12 & over
Rank						
18.	Abstracting journals or services	22 (6%)	13 (4%)	9 (10%)	8 (5%)	14 (6%)
19.	Informal personal contact or correspondence (other than with colleagues or at meetings)	21 (5%)	19 (6%)	2 (2%)	13 (7%)	8 (4%)
20.	Review and historical articles	21 (5%)	17 (6%)	4 (4%)	6 (3%)	15 (7%)
21.	Your other work or problems	19 (5%)	16 (5%)	3 (3%)	13 (7%)	6 (3%)
22.	Attendance at scientific and technical meetings	15 (4%)	12 (4%)	3 (3%)	7 (4%)	8 (4%)
23.	Personal files, notes, or reference lists	14 (4%)	14 (5%)	0 (0)	3 (2%)	11 (5%)
24.	Conversations with colleagues	5 (1%)	3 (10%)	2 (2%)	3 (2%)	2 (1%)
25.	Recent issues of journals or periodicals	3 (1%)	1 (0)	2 (2%)	0 (0)	3 (1%)
	No Answer	393	299	94	187	206

1/ Response to each source as percent of total respondents





INQUIRY ON REQUIREMENT OF USDA RESEARCH WORKERS  
FOR ACCESS TO SCIENTIFIC AND TECHNICAL PUBLICATIONS

The purpose of this questionnaire is to measure the professional requirements of the Department of Agriculture research workers for published information and their problems in obtaining it. Correspondents were asked to indicate their fields of interest as well as to identify the sources they used to gain access to information in those fields of interest.

Fields of Interest

Information fields of interest were collected through responses on the Specialties List used by the National Science Foundation (NSF) in maintaining the National Register of Scientific and Technical Personnel. The list used by NSF was enclosed with the Requirements questionnaire. The correspondent was instructed to mark as many fields as was important to him in his field of research. The areas with which this part of the survey was concerned were those in which the researcher needed and used published scientific and technical information. This is in contrast to the concern of the National Science Foundation for a register on the basis of professional competence.

A copy of the specialties list is shown in Exhibit IV.

Instructions for answering this part of the survey were:

Enclosed is a copy of the Specialties List used by the National Science Foundation in maintaining the National Register of Scientific and Technical Personnel. You may have used a similar list if you submitted a National Register Questionnaire specifying the areas of your professional competence. The areas with which the present survey is concerned are not necessarily those of your professional competence, but those in which you need and use published scientific and technical information.

Instructions in this section of the questionnaire refer to the accompanying Specialties List. Read through the following instructions and observe the example before marking the List.

**Instructions:** Review the list. Select those specialty titles describing fields in which subject matter, methods, or other information is important to you. For each specialty title selected:

1. Circle the corresponding code number on the List;
2. If your primary interest is for methods, procedures, or techniques, write the letter, "M", before the circled code number;
3. Estimate the time in years when most information important to you is of historical rather than current interest. To the left of the circled code number (and the letter "M" if used) write that time in years from initial publication date.

**Example:**

2	M	(7802)	Physiology Reproduction
50		(8X06)	Zoology Parasitology
25		(8503)	Animal Husbandry Small Animal

Now please mark the Specialties List in accordance with the instructions. Mark as many fields as you think important.





Method of analysis:

The specialties list is arranged so that the 902 titles referred to as minor order are grouped under sub-fields which are referred to as intermediate groups. The sub-fields are grouped under 10 fields referred to as major groups. For this analysis we have 11 major groups. To utilize punch cards and EAM equipment for sorting and listing totals the titles were combined based on the 4th digit of the specialty codes, resulting in 11 groups. 1/

A tabulation of the number of marks for each specialty title disregarding years may be used as an indication of the relative importance of the fields of interest. Since there were 754 specialties items marked, a combination of items under sub-fields and fields was necessary for a meaningful analysis.

The number of responses for each title (minor) were added to derive a total of responses for each sub-field or intermediate group; likewise the sub-field totals were added to derive a total of responses for each major field. The summaries included in this study are arranged according to rank determined by number of responses. The rank for the

1/ The titles under the Atmospheric, Lithospheric, and Hydrospheric Specialties group were coded 3000 and 1000; the Biology group contained codes 7000 and 8000; Astronomy, a major group with only 7 responses, was coded 9000, the same as Interdisciplinary Specialties; thus, summarizing on the 4th digit, astronomy became a sub-field. Likewise, items coded 3000 were combined for major Field referred to as "Atmospheric Dynamics through Metrological Instrumentation" and items coded 1000 were combined for another major field referred to as "Geochemistry through Oceanography". The Biology major fields were divided into two parts; Part #1 coded 7000 includes sub-field "Anatomy through Phytopathology"; Part #2 coded 8000 includes sub-fields "Virology through Horticulture."



major fields ranges from 1 for Biology part 1 with the greatest number of responses to 11 for Psychology with the smallest number of responses. The rank for the intermediate groups ranged from 1 for Statistics to 52 for Algebra. This excluded all sub-fields with less than 50 responses, and disregarded the order of the major field that the sub-field was associated with. Likewise, the rank for the titles (minor order) ranged from 1 for Design and Analysis of Experiments through 76 for Ground Waters. Likewise, this excluded all titles with less than 50 responses and disregarded the order of the intermediate or major field that the title was associated with.

A list of specialty list titles arranged according to rank as explained above is shown in Exhibit V identified as Specialties List, Field of Interest Rank.

#### Statistical Summary

Following the list of titles is a statistical summary of age of material for specialties titles, sub-fields and major fields. In the statistical summary the number in parenthesis beside the name of the field indicates the rank as shown in the list of titles and determined the order listed.

The scientist was asked to estimate the time in years when most information important to him was of historical rather than current interest. Responses to this have been expressed in this report as measuring the age of the material to which he may refer to information published within the period marked. 1/

1/ A tabulation which was made of the library request slips by classification number for 3 months will give some information as to the frequency of use by age of material.





Instructions for marking the specialties list directed the respondent to select the titles describing fields important to him, circle the corresponding code for each title selected and to write in the time in years from initial publication date when most information in the field is of historical rather than current interest. About 1/4 of the number circled did not report years. The rank was determined by the total number circled rather than the number reporting years.

Method of summarizing:

A card was punched for each specialty title marked. About 10,000 cards were produced. Each punch card showed the respondent identification number, the specialty code number, the years reported and showed if "M" for interest in method was recorded.

1. Summaries for each specialty title (minor order)

Cards were sorted by years (age of material) reported for each specialty code. The first Tab summary showed for each title (Minor group) a frequency distribution by years for reports showing methods, for reports not showing methods, and for all reports.

The tally for "0" years represents count of respondents not reporting years. The sums of number of reports and sums of years were shown for each of the 754 titles and the average number of years computed for each title. The mode which was the year with the largest number of reports was identified. Cards were then punched for each of the 754 titles showing the summary information which included number of reports, Mean, Mode, range of years (the low and the high years). The following sorts and listings were



made with summary cards arranged as follows:

- (1) by specialty codes in the order printed on Specialties List
- (2) according to rank of number of reports
- (3) according to average age of material

The print out of the above is available but ~~not~~ included in 5 sets of working papers.

2. Summaries for each sub-field or intermediate group

The original punched cards for each specialty title were sorted by the 3rd diget of the specialty code, thus combining titles into sub-fields or intermediate groups. The cards for each intermediate group were sorted by years and a tab summary showing frequency distribution by years similar to 1 was produced. Again summary cards for the intermediate group were punched and listed according to the 3 arrangements by sub-field, by rank of number of reports, and by average age of material.

3. Summaries for major fields

In the same manner the original punched cards for each specialty title were sorted by the 4th digit of each specialty code combining titles into the 11 major fields. The cards for each major field were sorted by years and a tab summary showing frequency distribution by years was produced. Summary cards were punched and listed as above. The arrangement according to rank of cumulated number of responses was used to determine the arrangement by rank as presented in the Statistical Summaries.





It should be pointed out that by accumulating the number of responses for each title to get sub-field total responses and again accumulating sub-field total responses to get major field total responses may misrepresent the importance of any sub-field or major field. The data were treated in this way because there was no other practical way to treat it for analysis. However, the total for any one sub-field would be influenced by the number of titles listed for each sub-field. This ranged from a low of 3 titles to a high of 35.

The following table shows Rank for major groups based on number of items on the list compared with Rank determined by the summation of responses to each title.

<u>Major Groups</u>	<u>Number of items</u>	<u>Specialties List</u>	
		<u>Rank based on number of items</u>	<u>Rank based on Summation of responses</u>
Interdisciplinary	139	1	2
Engineering	128	2	7
Mathematical & Statistical	122	3	3
Physics	101	4	8
Atmospheric	79	5	6
Chemistry	76	6	4
Biology #1	71	7	1
Psychology	61	8	11
Atmospheric	43	9	9
Biology #2	39	10	5
Social Science	27	11	10

The Biology (Part #1) group which ranked first in number of responses only ranked 7th in number of items on the list. This emphasises its importance as it ranked first in spite of there being fewer opportunities to mark items. Interdisciplinary rated 2nd in actual responses but first according to items available to mark. Math and Statistics ranked 3rd in both instances.





Using the method explained above for accumulating responses for sub-fields and major fields, tally of number of responses by years was used to combine responses into 5 year periods up to 50 years, with one total for more than 50. Generally, the years reported were in 5 year intervals except under 5 years reports of 1, 2, 3, or 4 years were common. The years reported have been presented in the statistical summary and in the charts as measured from the survey date of 1962.

Considering the years reported as age of material published the number of responses for each age reported was accumulated starting with number reporting the oldest material down through the number reporting 1 year old material. The total reported is shown as 1962 and "0" age or 100.0 percent in the table of respondents wanting access to material published within dates as percent of total respondents. This table expressed in percentages permits a comparison between sub-fields and fields without regard to the number of responses. These percentages are also presented in graphic form for important groups.





## SPECIALTIES LIST

FOR USE WITH

## NATIONAL REGISTER OF SCIENTIFIC AND TECHNICAL PERSONNEL

This list includes a number of subfields and appropriate specialties within these subfields. The Engineering, Social Sciences, Humanities, and other professional areas presented are not designed to give detailed specialty coverage. This "universal" list is presented in order that you may identify specialties in which you may be competent in related fields.

The section PROFESSIONAL EMPLOYMENT on the 1962 National Register Questionnaire requests that you indicate from this list the specialties in which you consider you have your greatest professional competence (item 12).

Please use the specific specialties and their numbers as indicated; if you find it necessary to select the "Other (specify)" category, write in the code number and give your own brief specialty title in item 12 of the Questionnaire.

## Atmospheric, Lithospheric, and Hydrospheric Specialties

### Atmospheric Dynamics, Chemistry and Physics

- 1 — 3001—Aeronomy
- 1 — 3002—Airglow
- 7 — 3003—Atmospheric chemistry
- 6 — 3004—Atmospheric electricity
- 3005—Atmospheric optics and acoustics
- 7 — 3006—Atmospheric thermodynamics
- 3007—Aurora
- 12 — 3008—Cloud and precipitation physics
- 1 — 3010—Composition
- 9 — 3011—Dynamics of atmospheric motion
- 3012—Magneto hydrodynamics
- 1 — 3013—Planetary atmospheres
- 31 — 3014—Radiation
- 8 — 3015—Solar-terrestrial relationships
- 14 — 3016—Turbulence and diffusion
- 1 — 3009—Other (specify)

### Climatology

- 67 — 3101—Bioclimatology
- 100 — 3102—Microclimatology
- 5 — 3103—Paleoclimatology
- 26 — 3104—Physical climatology
- 9 — 3105—Synoptic climatology
- 3109—Other (specify)

### Synoptic Meteorology

- 14 — 3201—Hydrometeorology
- 3 — 3202—Mesometeorology
- 22 — 3203—Micrometeorology
- 9 — 3204—Numerical analysis and prediction
- 19 — 3205—Observations
- 5 — 3206—Radar meteorology
- 19 — 3207—Weather analysis and forecasting
- 1 — 3209—Other (specify)

### Area Specializations

- 69 — 3301—Agricultural meteorology
- 19 — 3345—Air pollution
- 4 — 3302—Aviation meteorology
- 1 — 3303—Marine meteorology
- 5 — 3304—Polar meteorology
- 4 — 3305—Tropical meteorology
- 3 — 3309—Other (specify)

### Meteorological Instrumentation

- 30 — 3401—Automatic data sensing systems
- 1 — 3402—Balloon sounding systems
- 4 — 3403—Radar and radio instrumentation
- 3404—Rocket sounding systems
- 3405—Satellite instrumentation
- 2 — 3409—Other (specify)

### Geochemistry

- 1001—Cosmochemistry
- 8 — 1002—General inorganic geochemistry
- 8 — 1003—Isotopes and geochronology
- 6 — 1004—Mineral synthesis and stability relations of minerals
- 6 — 1005—Organic geochemistry
- 1009—Other (specify)

### Geodesy

- 1 — 1101—Earth motions
- 1 — 1102—Geodetic instrumentation
- 1 — 1103—Geodetic surveying
- 1403—Gravity—
- 1104—Navigation, geodetic astronomy
- 1 — 1109—Other (specify)

### Geology

- 14 — 1201—Areal geology
- 12 — 1202—Engineering geology
- 31 — 1203—General field geology
- 40 — 1204—Geology of ground water
- 5 — 1205—Geology of mineral deposits
- 1206—Geology of petroleum deposits
- 1 — 1207—Geology of solid fuels
- 9 — 1208—Glacial geology
- 27 — 1210—Geomorphology

- 10 — 1211—Mineralogy and crystallography
- 7 — 1212—Petrography and petrology, igneous and metamorphic
- 10 — 1213—Petrography and petrology, sedimentary
- 6 — 1214—Photogeology
- 8 — 1215—Stratigraphy
- 6 — 1216—Structural geology, igneous and metamorphic
- 10 — 1217—Structural geology, sedimentary
- 3 — 1209—Other (specify)

### Paleontology and Paleobotany

- 15 — 1301—Micropaleontology
- 5 — 1302—Paleobotany
- 5 — 1303—Paleontology, invertebrate
- 1304—Paleontology, vertebrate
- 1 — 1305—Palynology
- 1309—Other (specify)

### Solid-earth Geophysics

- 3 — 1401—Geomagnetism and electricity
- 1402—Geophysical surveying
- 1403—Gravity
- 16 — 1404—Heat flow
- 7 — 1405—Physical properties of materials
- 1406—Physics of volcanoes
- 1407—Seismology, induced vibrations
- 1408—Seismology, natural vibrations
- 1410—Tectonophysics
- 1409—Other (specify)

### Geography

- 20 — 1501—Biogeography
- 7 — 1502—Cultural geography
- 40 — 1503—Economic geography
- 6 — 1504—Historical geography
- 3 — 1505—Military geography
- 1506—Philosophy of geography
- 20 — 1507—Physical geography
- 9 — 1508—Political geography
- 16 — 1510—Regional geography (specify region)
- 1 — 1511—Theoretical geography
- 1 — 1512—Toponymy
- 1 — 1509—Other (specify)

### Hydrology

- 31 — 1601—Chemistry of water
- 62 — 1602—Erosion and sedimentation
- 92 — 1603—Evaporation and transpiration
- 5 — 1604—Glaciology
- 50 — 1605—Ground waters
- 77 — 1606—Precipitation
- 26 — 1607—Snow, ice and permafrost
- 109 — 1608—Soil moisture
- 51 — 1610—Surface waters
- 3 — 1609—Other (specify)

### Oceanography

- 4 — 1701—Biological oceanography
- 1 — 1702—Chemical oceanography
- 1 — 1703—Descriptive oceanography
- 1 — 1704—Hydrography
- 1705—Ocean-bottom processes
- 1 — 1706—Physical oceanography
- 3 — 1707—Sea-air interactions
- 7 — 1708—Shore and near shore processes
- 1710—Underwater sound
- 1709—Other (specify)

### Atmospheric, lithospheric, and hydrospheric special- ties, other (specify)

## Biology

Please use the specific specialties and the four-digit codes. A number of biological specialties, at the end of this biology section, appropriate to more than one subfield, have only two digits. Please indicate your appropriate subfield and specialties as follows: If your biological subfield is bacteriology (7X) and your specialization is metabolism (80), code as 7X80; however, if your biological subfield is physiology (78) and your specialization is metabolism (80), code as 7880.

### Anatomy

- 9 — 7Y01—Comparative
- 9 — 7Y02—Gross

- 16 — 7Y03—Microscopic
- 3 — 7Y04—Neuroanatomy
- 4 — 7Y05—Systemic
- 2 — 7Y06—Topographic

### Bacteriology

- 41 — 7X01—Bacterial metabolism
- 33 — 7X02—Bacterial physiology
- 53 — 7X03—Microbial processes

### Botany

- 3 — 7001—Bryology
- 50 — 7002—Dendrology
- 37 — 7003—Mycology
- 97 — 7004—Nutrition and growth
- 15 — 7005—Parasitology
- 3 — 7006—Phycology
- 69 — 7007—Plant anatomy
- 196 — 7008—Plant physiology
- 1 — 7010—Pteridology
- 33 — 7011—Systematics of higher plants
- 1 — CODE IN ERROR

### Ecology

- 58 — 7101—Animal ecology
- 179 — 7102—Plant ecology
- 17 — 7103—Zoogeography

### Entomology

- 85 — 7201—Agricultural
- 10 — 7202—Apiculture
- 39 — 7203—Control, chemical
- 76 — 7204—Control, other
- 65 — 7205—Forest
- 69 — 7206—Insect pests
- 55 — 7207—Insect physiology, morphology
- 25 — 7208—Medical

### Genetics

- 43 — 7301—Animal
- 12 — 7302—Human
- 44 — 7303—Microorganisms
- 115 — 7304—Plant
- 63 — 7305—Population studies

### Immunology

- 29 — 7401—Antibody formation
- 41 — 7402—Antigens and antibodies
- 23 — 7403—Antigens-antibody reaction
- 16 — 7404—Complement
- 18 — 7405—Hypersensitivity
- 27 — 7406—Infection and resistance
- 13 — 7407—Interference; latency
- 17 — 7408—Tissue antibodies; autoantibodies

### Nutrition

- 70 — 7501—Animal nutrition
- 15 — 7502—Clinical nutrition
- 65 — 7504—Nutrient value of foods
- 42 — 7505—Requirements and deficiencies

### Pathology

- 9 — 7601—Clinical
- 4 — 7602—Comparative
- 12 — 7603—Cytopathology, histopathology
- 15 — 7604—Experimental

### Pharmacology

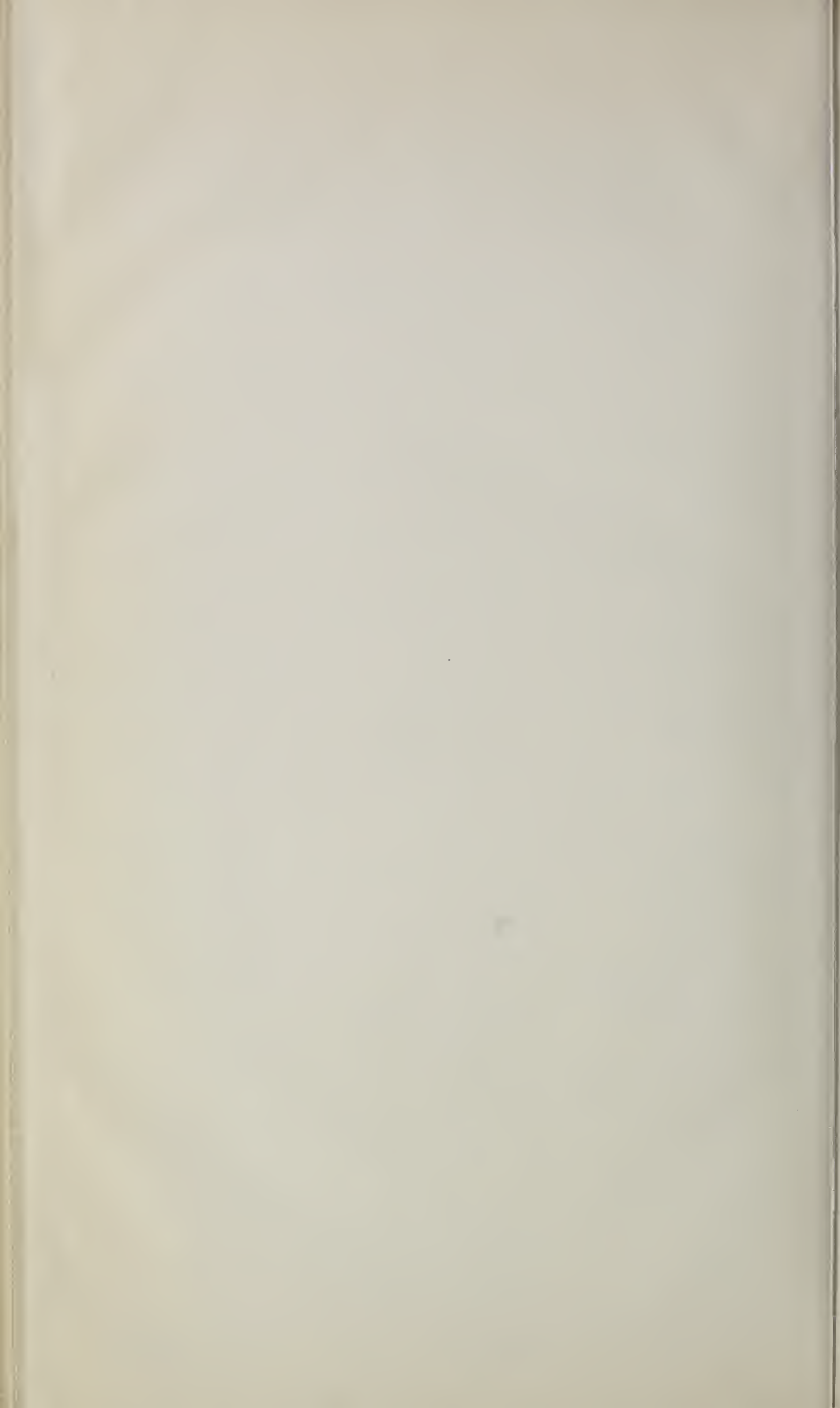
- 6 — 7701—Chemical pharmacology
- 16 — 7702—Chemotherapy
- 6 — 7703—Drug enzymology
- 6 — 7704—Experimental therapeutics, clinical
- 13 — 7705—Industrial chemicals
- 3 — 7706—Neuropharmacology
- 3 — 7707—Pharmacodynamics
- 1 — 7708—Psychopharmacology
- 28 — 7710—Toxicology

### Physiology

- 3 — 7801—Neurophysiology
- 23 — 7802—Reproduction
- 6 — 7803—Respiratory

### Phytopathology

- 41 — 7901—Bacterial
- 59 — 7902—Disease control, chemical
- 63 — 7903—Disease control, other
- 69 — 7904—Fungal





- 53 -7905—Host resistance
- 30 -7906—Nematodal
- 27 -7907—Physiogenic
- 35 -7908—Viral

## Virology

- 8 -8Y01—Arbor viruses
- 4 -8Y02—Enteric viruses
- 7 -8Y03—Pox viruses
- 5 -8Y04—Respiratory viruses
- 7 -8Y05—Tumor viruses

## Zoology

- 2 -8X01—Herpetology
- 7 -8X02—Ichthyology
- 14 -8X03—Invertebrate
- 17 -8X04—Mammalogy
- 9 -8X05—Ornithology
- 25 -8X06—Parasitology
- 15 -8X07—Protozoology
- 6 -8X08—Vertebrate

## Agronomy

- 91 -8401—Crop breeding, hybridization
- 90 -8402—Crop management
- 104 -8403—Field crops
- 85 -8404—Pasture and forage crops
- 59 -8405—Seeds
- 14 -8406—Turf and ornamental crops
- 84 -8407—Weed control

## Animal Husbandry

- 44 -8501—Large animal
- 31 -8502—Poultry
- 14 -8503—Small animal

## Fish and Wildlife

- 17 -8601—Controls
- 27 -8602—Food habits
- 20 -8603—Habitat influences
- 14 -8604—Population dynamics
- 14 -8605—Propagation and management

## Forestry and Range

- 64 -8701—Erosion control
- 104 -8702—Forestry management
- 55 -8703—Forest products
- 57 -8704—Forest protection
- 31 -8705—Irrigation
- 64 -8706—Range management
- 89 -8707—Silviculture
- 78 -8708—Watershed management

## Horticulture

- 24 -8801—Floriculture and ornamentals
- 48 -8802—Fruits
- 47 -8803—Vegetables

## Other Biological Specialties

- 7Y.....Anatomy
- 7X.....Bacteriology
- 70.....Botany
- 71.....Ecology
- 72.....Entomology
- 73.....Genetics
- 74.....Immunology
- 75.....Nutrition
- 76.....Pathology
- 77.....Pharmacology
- 78.....Physiology
- 79.....Phytopathology
- 8Y.....Virology
- 8X.....Zoology
- 84.....Agronomy
- 85.....Animal Husbandry
- 86.....Fish and Wildlife
- 87.....Forestry and Range Science
- 88.....Horticulture

to be used with:

- ...45—Air pollution
- ...46—Amino acids, peptides, proteins
- ...47—Anesthesiology
- ...48—Anthropology
- ...49—Antibiotics
- ...50—Aviation—space biology
- ...51—Biologicals
- ...52—Biology documentation
- ...53—Bio-optics
- ...54—Blood groups
- ...55—Breeding, hybridization
- ...56—Carbohydrates
- ...57—Cardiovascular system
- ...58—Cell tissue biology
- ...59—Central nervous system
- ...60—Conservation
- ...61—Cytology
- ...62—Demography
- ...63—Development and growth
- ...64—Electrolyte
- ...65—Electron microscopy
- ...66—Endocrinology
- ...67—Environmental biology
- ...44—Enzymes
- ...68—Epidemiology
- ...69—Fatty acids; fats
- ...70—Food additives
- ...71—Gastroenterology
- ...72—Hematology
- ...73—Immunochemistry
- ...74—Industrial hygiene and occupational health
- ...75—Ionizing radiation
- ...76—Isotopes
- ...77—Limnology

- ...78—Lipids
- ...79—Marine
- ...80—Metabolism
- ...81—Methodology
- ...82—Morphology
- ...83—Muscle
- ...84—Nucleo proteins
- ...85—Oncology
- ...86—Organ systems
- ...87—Photosynthesis
- ...88—Psychiatry
- ...89—Radiation biology
- ...90—Renal system
- ...91—Serology
- ...92—Standardizations
- ...93—Steroids
- ...94—Taxonomy
- ...95—Technology
- ...96—Tissue culture
- ...97—Trace elements
- ...98—Transplantation
- ...99—Transport
- ...43—Vitamins

8909—Biology, other (specify)

## Chemistry

### Analytical Chemistry

- 74 -0001—Absorption spectroscopy
- 20 -0002—Chemical microscopy
- 158 -0003—Chromatographic analysis
- 13 -0004—Electromeric analysis
- 11 -0005—Emission spectroscopy
- 29 -0006—Gas analysis
- 50 -0007—Gravimetric analysis
- 18 -0008—Mass spectroscopy
- 44 -0010—Microchemistry
- 13 -0011—Nucleonics
- 56 -0012—Qualitative analysis
- 56 -0013—Solvent extraction
- 67 -0014—Volumetric analysis
- 23 -0015—X-ray analysis
- 5 -0009—Other (specify)
- 2 -0019—NONMINERAL PRODUCTS; ASBESTOS, ETC.

### Inorganic Chemistry

- 8 -0101—Alkalies and compounds
- 9 -0102—Alkaline earths and compounds
- 7 -0103—Atomic nuclei
- 7 -0104—Boron family
- 3 -0105—Building products; cement, lime, etc.
- 7 -0106—Carbon family
- 18 -0107—Clay and clay products
- 13 -0108—Coordination compounds
- 3 -0110—Electronic materials; semiconductors, ferroelectrics, ferromagnetics
- 1 -0111—Explosives, rocket fuels
- 2 -0112—Extranuclear structure
- 1 -0113—Glass, fused silica
- 5 -0114—Halogen family
- 4 -0115—Hydrogen
- 0116—Industrial carbon, graphite, carbon black
- 1 -0117—Inner-transition elements, lanthanide series and actinide series
- 25 -0118—Nitrogen family
- out of place -0019—Nonmineral products; asbestos, vermiculite, etc.
- 4 -0120—Oxygen family
- 6 -0121—Pigments and industrial minerals
- 8 -0122—Radioactive minerals and products
- 16 -0123—Solutions and solvent theory
- 10 -0124—Theoretical inorganic chemistry
- 3 -0125—Transition elements
- 3 -0109—Other (specify)

### Organic Chemistry

- 25 -0201—Adhesives
- 105 -0202—Agricultural chemicals
- 28 -0203—Aliphatic chemistry
- 17 -0204—Alkaloids
- 73 -0205—Amino acids and proteins
- 24 -0206—Antibiotics
- 25 -0207—Aromatic hydrocarbons, derivatives
- 89 -0208—Carbohydrates
- 1 -0210—Coal
- 9 -0211—Dyestuffs
- 15 -0212—Elastomers and related products
- 1 -0213—Explosives and rocket fuels
- 4 -0214—Fluorine compounds
- 14 -0215—Free radical
- 20 -0216—Heterocycles
- 49 -0217—Ion exchange resins
- 64 -0218—Oils, fats, waxes
- 10 -0219—Organometallics
- 4 -0220—Petroleum
- 13 -0221—Pharmaceuticals
- 31 -0222—Phosphorus compounds
- 7 -0223—Photo products
- 34 -0224—Plastics and synthetic resins
- 28 -0225—Protective coatings
- 28 -0226—Reaction mechanisms
- 3 -0227—Silicon compounds
- 13 -0228—Small ring compounds
- 34 -0229—Soaps, detergents, surfactants
- 20 -0230—Stereochemistry
- 19 -0231—Steroids
- 19 -0232—Terpenes and other alicyclics
- 25 -0233—Textiles and related products
- 36 -0234—Use of isotopes
- 53 -0235—Wood, paper and cellulose
- 8 -0209—Other (specify)

8—0909—Chemistry, other (specify)

## Mathematics and Statistics

### Algebra

- 4 -2X01—Boolean algebra
- 3 -2X02—Combinatorial analysis
- 8 -2X03—Differential algebra
- 1 -2X04—Fields, rings, algebras
- 4 -2X05—Groups, generalizations
- 2X06—Homological algebra
- 3 -2X07—Lattices
- 31 -2X08—Linear algebra and matrix theory
- 2 -2X10—Order, total and partial
- 11 -2X11—Polynomials
- 1 -2X12—Representaton theory
- 1 -2X09—Other (specify)

### Analysis and Functional Analysis

- 2001—Banach spaces and algebras
- 10 -2002—Calculus of variations
- 1 -2003—Convexity, inequalities
- 15 -2004—Difference equations, functional equations
- 18 -2005—Functions of real variables
- 16 -2006—Functions of a complex variable
- 13 -2007—Functions of several complex variables
- 2008—Hilbert spaces
- 8 -2010—Integral equations
- 5 -2011—Integral transforms
- 12 -2012—Interpolation, approximation
- 2013—Lie groups and algebras
- 12 -2014—Measure, integration, area
- 17 -2015—Operational calculus
- 30 -2016—Ordinary differential equations
- 30 -2017—Partial differential equations
- 2 -2018—Potential theory, subharmonic functions
- 6 -2019—Series, summability
- 3 -2020—Set theory
- 1 -2021—Special functions
- 11 -2022—Trigonometric series and integrals
- 1 -2009—Other (specify)

### Geometry

- 2101—Affine geometry
- 6 -2102—Algebraic geometry
- 2103—Complex manifolds
- 2104—Convex domains, extremum problems
- 4 -2105—Differential geometry, tensor analysis
- 5 -2106—Euclidean geometry
- 2107—Finite geometries
- 2108—Foundations
- 2110—Integral geometry
- 1 -2111—Projective, non-Euclidean geometries
- 2112—Riemannian geometry
- 2109—Other (specify)

### Logic

- 16 -2201—Applications of logic
- 5 -2202—Formal and symbolic logic
- 6 -2203—Foundations of mathematics
- 1 -2204—Intuitionism
- 1 -2205—Recursive functions
- 2209—Other (specify)

### Mathematics of Resource Use

- 237 -2301—Activity analysis
- 1 -2302—Actuarial mathematics
- 90 -2303—Biometrics, biostatistics
- 7 -2304—Control systems
- 2 -2305—Cryptography
- 23 -2306—Dynamic programming
- 37 -2307—Econometrics
- 20 -2308—Game theory
- 4 -2310—Information and communication theory
- 8 -2311—Logistics, inventory
- 18 -2312—Operations research
- 2 -2313—Weapons systems evaluation
- 2309—Other (specify)

### Number Theory

- 5 -2401—Algebraic number theory
- 2402—Analytic number theory
- 2403—Diophantine approximation
- 2404—Elementary number theory
- 2405—Geometry of numbers
- 2409—Other (specify)

### Numerical Methods and Computation

- 2 -2501—Algorithm construction
- 27 -2502—Analogue systems, coding and programming
- 7 -2503—Difference and functional equations
- 67 -2504—Digital computers, coding and programming
- 19 -2505—Digital computers, logic and design
- 2 -2506—Eigenvalues, Raleigh-Ritz method
- 20 -2507—Error analysis
- 7 -2508—General methods, iteration
- 41 -2510—Interpolation, approximation, curve-fitting
- 5 -2511—Integral and integro-differential equations





- 33 -2512—Linear equations, matrices
- 7 -2513—Nomography, tables
- 4 -2514—Numerical differentiation, quadrature
- 23 -2515—Ordinary differential equations
- 23 -2516—Partial differential equations
- 1 -2517—Special functions
- 2509—Other (specify)

### Topology

- 2601—Abstract spaces
- 2602—Applications to analysis
- 2 -2603—Fibre bundles and spaces
- 11 -2604—Graphs
- 2605—Homology, cohomology
- 2606—Homotopy
- 2607—Manifolds, Kaehler spaces
- 1 -2608—Mappings
- 2610—Point-set topology
- 2611—Topological dynamics
- 2612—Topological groups
- 2609—Other (specify)

### Probability

- 19 -2701—Analytic probability theory
- 53 -2702—Applications of probability
- 11 -2703—Foundations of probability
- 5 -2704—Limit theorems
- 5 -2705—Stochastic processes, general
- 6 -2706—Markov processes
- 1 -2707—Theory of generating functions
- 23 -2708—Time series
- 2709—Other (specify)

### Statistics

- 128 -2801—Analytical statistics
- 21 -2802—Decision theory, sequential analysis
- 256 -2803—Design and analysis of experiments
- 65 -2804—Estimation and testing, parametric
- 71 -2805—Multivariate analysis
- 25 -2806—Non-parametric methods
- 25 -2807—Quality control
- 218 -2808—Sampling techniques
- 153 -2810—Survey methods: including forms design, data collection and data processing
- 49 -2811—Theory of statistical inference
- 46 -2812—Time series analysis
- 2 -2809—Other (specify)

-2909—Mathematics, other (specify)

## Physics

### Acoustics

- 5 -4Y01—Applied acoustics, instruments and apparatus
- 4Y02—Architectural acoustics
- 2 -4Y03—Bioacoustics
- 1 -4Y04—Ear and hearing
- 2 -4Y05—Electroacoustics
- 8 -4Y06—Mechanical vibrations & shock
- 4Y07—Musical instruments & music
- 3 -4Y08—Noise
- 5 -4Y10—Sound transmission
- 4Y11—Speech and singing
- 21 -4Y12—Ultrasonics
- 4 -4Y13—Underwater sound
- 4Y09—Other (specify)

### Atomic and Molecular Physics

- 4X01—Atomic mass and abundance
- 4X02—Atomic and molecular beams
- 5 -4X03—Structure and spectra
- 2 -4X04—X-ray phenomena
- 8 -4X05—X-ray technology
- 4X09—Other (specify)

### Electromagnetic Waves and Electron Physics

- 1 -4001—Antenna theory
- 28 -4002—Electrical measurements and instruments
- 3 -4003—Electron dynamics
- 3 -4004—Gas discharge
- 3 -4005—Masers and similar devices
- 2 -4006—Microwaves
- 5 -4007—Physical electronics
- 5 -4008—Radio waves
- 4009—Other (specify)

### Elementary Particle Physics

- 1 -4101—Cosmic rays
- 4102—High energy accelerators
- 3 -4103—High energy particles
- 4109—Other (specify)

### Mechanics

- 14 -4201—Analytical mechanics
- 4202—Ballistics
- 1 -4203—Continuum mechanics
- 4204—Flight dynamics
- 2 -4205—Gravity and gravitation
- 2 -4206—High pressure phenomena
- 2 -4207—High vacuum techniques
- 23 -4208—Instrumental measurement (principally mechanical)
- 16 -4210—Rheology
- 2 -4209—Other (specify)

## Nuclear Structure Physics

- 2 -4301—Accelerators
- 5 -4302—Detectors
- 4 -4303—Nuclear reactions and scattering
- 2 -4304—Nuclear spectroscopy
- 18 -4305—Radiation and isotope use
- 3 -4306—Reactors
- 4309—Other (specify)

### Optics

- 3 -4401—Atmospheric optics
- 27 -4402—Color, colorimetry & photometry
- 7 -4403—Films and coatings
- 4404—Geometrical optics
- 11 -4405—Illumination
- 6 -4406—Lenses
- 22 -4407—Optical instruments
- 37 -4408—Photography
- 3 -4410—Physical optics
- 23 -4411—Spectroscopy
- 4 -4412—Vision
- 4409—Other (specify)

### Physics of Fluids

- 17 -4501—Boundary layer effects
- 7 -4502—Compressible fluid dynamics
- 14 -4503—Incompressible fluid dynamics
- 4504—High-temperature flow
- 4505—Magneto fluid dynamics
- 3 -4506—Plasma physics
- 4 -4507—Plastic flow
- 4508—Rarefied gas flow
- 3 -4510—Shock wave phenomena
- 4 -4511—Structure and properties of gases
- 7 -4512—Structure and properties of liquids
- 4513—Superfluidity
- 13 -4514—Turbulence
- 4509—Other (specify)

### Solid State

- 2 -4601—Crystallography
- 7 -4602—Dielectrics (including fluids)
- 7 -4603—High polymers and glasses
- 4 -4604—Luminescence
- 7 -4605—Magnetic resonance
- 3 -4606—Magnetism in solids
- 6 -4607—Photoelectric phenomena
- 1 -4608—Physics of metals
- 6 -4610—Piezo and ferro-electricity
- 4 -4611—Radiation damage
- 6 -4612—Semiconductors
- 1 -4613—Superconductivity
- 9 -4614—Surface physics
- 9 -4615—Thin films
- 4609—Other (specify)

### Theoretical Physics

- 1 -4701—Field theory
- 1 -4702—Quantum mechanics
- 4703—Relativity and gravitation
- 1 -4704—Statistical mechanics and kinetic theory
- 4709—Other (specify)

### Thermal Phenomena

- 5 -4801—Cryogenics
- 27 -4802—Heat radiation and transmission
- 20 -4803—Temperature & its measurements
- 17 -4804—Thermodynamics
- 4809—Other (specify)

1 -4909—Physics, other (specify)

## Astronomy

- 9001—Astrometry
- 9002—Astrophysics
- 1 -9003—Celestial mechanics
- 9004—Cosmogony
- 9005—Cosmology
- 1 -9006—Design of astronomical instruments
- 1 -9007—Navigation, geodetic astronomy
- 1 -9008—Photoelectric photometry
- 9010—Physics of planets, satellites
- 1 -9011—Physics of the interstellar medium
- 1 -9012—Physics of the sun
- 1 -9013—Radio astronomy
- 9014—Spectroscopy of astronomical sources
- 9015—Star systems and statistical astronomy
- 9016—Stellar energy sources and nucleogenesis
- 9009—Astronomy, other (specify)

## Psychology

### Clinical Psychology

- 9 -5001—Behavior problems
- 1 -5002—Crime and delinquency
- 1 -5003—Experimental psychopathology
- 2 -5004—Group therapy
- 5005—Individual diagnosis & therapy
- 5006—Mental deficiency
- 1 -5007—Objective tests
- 5008—Projective techniques
- 5010—Speech pathology
- 1 -5009—Other (specify)

## Counseling and Guidance

- 1 -5101—Educational counseling
- 5102—Nondirective therapy
- 2 -5103—Personal adjustment
- 1 -5104—Rehabilitation
- 1 -5105—Vocational counseling
- 5109—Other (specify)

### Developmental Psychology

- 5201—Nursery and pre-school
- 5202—Childhood and adolescence
- 5203—Maturity and old age
- 5209—Other (specify)

### Educational Psychology

- 2 -5301—Educational measurement
- 5302—School adjustment
- 1 -5303—School learning
- 1 -5304—Special education
- 1 -5305—Student personnel
- 1 -5306—Teacher personnel
- 5309—Other (specify)

### General Psychology

- 2 -5401—History and biography
- 1 -5402—Theory and systems
- 1 -5409—Other (specify)

### Industrial and Personnel Psychology

- 23 -5501—Employee and executive training and development
- 17 -5502—Employee morale and attitudes
- 14 -5503—Job analysis and position classification
- 6 -5504—Labor-management relations
- 15 -5505—Market research, advertising
- 13 -5506—Performance evaluation, criterion development
- 14 -5507—Recruiting, selection, placement
- 7 -5508—Safety research and training
- 5 -5510—Salary and pay plans
- 1 -5509—Other (specify)

### Personality

- 6 -5601—Development
- 3 -5602—Measurement
- 1 -5603—Personality and body
- 5 -5604—Personality and learning
- 2 -5605—Personality and perception
- 1 -5606—Personality theory
- 5607—Structure and dynamics
- 5609—Other (specify)

5Y01—Programmed Learning

5X01—School Psychology

### Social Psychology

- 3 -5701—Culture and personality
- 5 -5702—Group interaction
- 9 -5703—Language and communication
- 9 -5704—Leadership
- 5 -5705—Mass media communication
- 2 -5706—Role differentiation
- 5 -5707—Social attitudes
- 1 -5708—Social perception and cognition
- 12 -5710—Surveys and polls
- 5709—Other (specify)
- 1 -5909—Psychology, other (specify)

## Interdisciplinary Specialties

### Agriculture and Food Chemistry

- 458 -9101—Alcoholic beverages
- 42 -9102—Animal and vegetable fats, oils
- 31 -9103—Animal feeds
- 19 -9104—Bakery and confectionery products
- 36 -9105—Cereals, carbohydrates
- 81 -9106—Fertilizers, plant growth regulators
- 45 -9107—Food and feed additives
- 36 -9108—Fruits, vegetables, juices
- 43 -9110—Meat, fish, dairy and poultry products
- 7 -9111—Nonalcoholic beverages
- 15 -9112—Nonfood crop products
- 88 -9113—Pesticides (insect, herbi-, fungicides, etc.)
- 8 -9109—Other (specify)

### Biochemistry

- 26 -9201—Antimetabolites
- 55 -9202—Biochemical mechanisms
- 8 -9203—Biochemorphology
- 8 -9204—Clinical
- 16 -9205—Cyto-histo-chemistry
- 4 -9206—Endocrine
- 59 -9207—Enzyme, co-enzyme
- 43 -9208—Intermediary metabolism, biosynthesis
- 45 -9210—Microbiological
- 23 -9211—Natural pigments (carotenoids)
- 3 -9212—Neurochemistry
- 30 -9213—Nucleic acids (purines, pyrimidines)
- 15 -9214—Physical





- 15 — 9215—Radiation biochemistry
- 74 — 9246—Amino acids, peptides, proteins
- 55 — 9256—Carbohydrates
- 21 — 9273—Immunochemistry
- 37 — 9278—Lipids, (phospho-, glyco-, fats, oils)
- 42 — 9281—Technology, methodology
- 7 — 9285—Oncology, carcinogenesis
- 11 — 9293—Steroids
- 1 — 9209—Other (specify)

## Biophysics

- 2 — 9301—Bioacoustics and transmission
- 9 — 9302—Biochemical physics
- 4 — 9303—Bioelectricity and transmission
- 4 — 9304—Bio-systems, control, communications
- 2 — 9305—Biothermics and bioenergetics
- 7 — 9306—Biotransport and membrane physics
- 9 — 9307—Cellular biophysics
- 1 — 9308—Fluid biomechanics
- 1 — 9310—Health physics
- 9311—Mathematical biophysics
- 18 — 9312—Methodology, instrumentation, and measurement
- 10 — 9313—Molecular biophysics
- 20 — 9389—Radiation biology
- 9315—Solid biomechanics
- 2 — 9316—Theoretical physical biology
- 2 — 9353—Biooptics (physical and geometric)
- 12 — 9365—Electron microscopy
- 9309—Other (specify)

## Electronics

- 14 — 9401—Circuit theory
- 9 — 9402—Computer design & development
- 10 — 9403—Electron tubes
- 25 — 9404—Electronic circuitry
- 3 — 9405—Guidance and control
- 52 — 9406—Instrumental measurement (principally electronic)
- 2 — 9407—Radio communication
- 10 — 9408—Semiconductors
- 5 — 9410—Solid state devices, other
- 1 — 9411—Television systems
- 1 — 9409—Other (specify)

## Experimental, Comparative, and Physiological Psychology

- 1 — 9501—Aesthetics
- 4 — 9502—Animal learning
- 1 — 9503—Apparatus design & evaluation
- 9504—Audition
- 9505—Autonomic functions
- 9506—CNS functions
- 3 — 9507—Communications research, information theory
- 1 — 9508—Electroencephalography
- 2 — 9510—Engineering psychology
- 1 — 9511—Fatigue
- 9512—Feeling and emotion
- 3 — 9513—Motivation
- 1 — 9514—Motor skills
- 9515—Perception
- 9516—Psychophysics
- 9517—Sensory processes
- 1 — 9518—Symbolic processes, problem solving
- 9519—Vision
- 9509—Other (specify)

## Photogrammetry, Photo-interpretation, Cartography

- 38 — 9601—Aerial photography
- 5 — 9602—Analytical photogrammetry
- 1 — 9603—Ballistic and satellite photogrammetry
- 2 — 9604—Compilation cartography
- 9605—Design cartography
- 10 — 9606—Interpretation: cultural features
- 9607—Interpretation: military features
- 27 — 9608—Interpretation: natural features and resources
- 1 — 9610—Interpretation: space features
- 9611—Reproduction cartography
- 2 — 9612—Sensor imagery
- 9 — 9613—Stereo plotting
- 4 — 9614—Terrestrial photogrammetry
- 9609—Other (specify)

## Physical Chemistry

- 19 — 9701—Catalysis
- 18 — 9702—Chemical kinetics
- 33 — 9703—Colloid chemistry
- 24 — 9704—Determination of physical constants
- 8 — 9705—Electrochemistry
- 9706—Electrodeposition
- 3 — 9707—Flames and explosives
- 1 — 9708—Fused salts
- 1 — 9710—Gaseous state
- 9711—High temperature chemistry
- 3 — 9712—Homogeneous chemical equilibrium
- 39 — 9713—Ion exchange and applications
- 4 — 9714—Liquid state
- 20 — 9715—Molecular structure
- 6 — 9716—Phase equilibria
- 8 — 9717—Photochemistry
- 21 — 9718—Polymer chemistry
- 3 — 9719—Quantum theory

- 10 — 9720—Radiation chemistry
- 11 — 9721—Solid, including X-ray methods
- 11 — 9722—Solutions of electrolytes
- 5 — 9723—Solutions of nonelectrolytes
- 27 — 9724—Surface chemistry
- 3 — 9725—Thermochemistry
- 8 — 9726—Thermodynamics
- 1 — 9709—Other (specify)

## Psychometrics

- 9 — 9801—Experimental design
- 3 — 9802—Factor analysis
- 5 — 9803—High-speed computers
- 5 — 9804—Mathematical models
- 7 — 9805—Statistical development
- 1 — 9806—Test construction, validation
- 9807—Test theory, scale analysis
- 9809—Other (specify)

## Soil Specialties

- 22 — 9901—Fertility, management
- 35 — 9902—Soil bacteriology
- 55 — 9903—Soil chemistry
- 53 — 9904—Soil genesis, classification and mapping
- 40 — 9905—Soil mechanics and engineering
- 24 — 9906—Soil mineralogy
- 78 — 9960—Soil conservation
- 16 — 9909—Other (specify)

# Engineering

## Aeronautical Engineering

- 1 — 6Y01—Aerodynamic loads
- 6 — 6Y02—Aerodynamics
- 1 — 6Y03—Aircraft fuels combustion
- 1 — 6Y04—Aircraft structures
- 1 — 6Y05—Airports, air transport
- 6Y06—Compressors, turbines
- 1 — 6Y07—Flight test and research
- 1 — 6Y08—Flutter, vibration
- 2 — 6Y10—Hydrodynamics
- 7 — 6Y11—Instrumentation
- 1 — 6Y12—Landing loads
- 6Y13—Propulsion systems, materials, structure
- 2 — 6Y14—Rotary wing
- 6Y15—Stability, control
- 6Y09—Other (specify)

## Ceramic Engineering

- 1 — 6X01—Abrasives
- 4 — 6X02—Clay products
- 6X03—Cements, limes, plasters
- 2 — 6X04—Glass
- 6X05—Kilns, furnaces
- 1 — 6X06—Protective and refractory coatings for metals
- 6X07—Refractories
- 6X09—Other (specify)

## Chemical Engineering

- 16 — 6001—Adsorption and absorption
- 12 — 6002—Chemical separation
- 4 — 6003—Electrochemical operations
- 18 — 6004—Fluid flow
- 30 — 6005—Heat transfer
- 16 — 6006—Mass transfer
- 18 — 6007—Materials handling
- 23 — 6008—Measurement and control
- 15 — 6010—Mechanical separation
- 10 — 6011—Mixing
- 3 — 6012—Nuclear processes
- 9 — 6013—Size reduction
- 5 — 6009—Other (specify)

## Civil Engineering

- 6101—Airport construction
- 1 — 6102—City planning
- 12 — 6103—Construction, heavy
- 18 — 6104—Construction, light
- 25 — 6105—Dams and stream control
- 6 — 6106—Highways
- 1 — 6107—Railroads and terminals
- 24 — 6108—Reclamation and water use
- 6110—Subways and under-city construction
- 9 — 6111—Waterways and harbors
- 1 — 6109—Other (specify)

## Electrical Engineering

- 6 — 6201—Illumination
- 5 — 6202—Power generation
- 6 — 6203—Power transmission and distribution
- 5 — 6204—Rotating machinery
- 13 — 6205—Servomechanisms
- 2 — 6206—Transportation, traffic
- 1 — 6207—Wire communication systems
- 2 — 6209—Other (specify)

## Engineering Mechanics

- 15 — 6301—Dynamics
- 9 — 6302—Elasticity
- 18 — 6303—Fluid dynamics
- 8 — 6304—Plasticity
- 33 — 6305—Properties of materials
- 15 — 6306—Statics
- 20 — 6307—Thermodynamics
- 2 — 6309—Other (specify)

## Industrial Engineering

- 16 — 6401—Engineering economics
- 7 — 6402—Maintenance engineering

- 15 — 6403—Operational analysis
- 3 — 6404—Procurement, accounting
- 7 — 6405—Production engineering
- 8 — 6406—Production planning
- 14 — 6407—Quality control
- 20 — 6408—Standards, testing of materials
- 15 — 6410—Time and motion study
- 1 — 6409—Other (specify)

## Mechanical Engineering

- 16 — 6501—Air conditioning
- 1 — 6502—Automotive engineering
- 3 — 6503—Boilers and steam engineering
- 3 — 6504—Construction
- 1 — 6505—Gas turbines
- 5 — 6506—Internal combustion engines
- 3 — 6507—Lubrication engineering
- 16 — 6508—Machine design
- 5 — 6510—Machine tools
- 26 — 6511—Materials handling
- 18 — 6512—Refrigeration
- 6513—Steam engines and turbines
- 10 — 6514—Textile engineering
- 4 — 6515—Welding engineering
- 1 — 6509—Other (specify)

## Metallurgy and Metallurgical Engineering

- 6601—Electrometallurgy
- 6602—Foundry practice
- 2 — 6603—Iron and steel extraction
- 6604—Metal treatment & fabrication
- 6605—Nonferrous extraction
- 6606—Physical metallurgy
- 6607—Powder metallurgy
- 1 — 6608—Metallurgy, other (specify)
- 6609—Metallurgical engineering, other (specify)

## Mining and Petroleum Engineering

- 1 — 6701—Beneficiation
- 2 — 6702—Open cut mining
- 6703—Petroleum exploration and development
- 1 — 6704—Petroleum production
- 6705—Petroleum underground storage
- 2 — 6706—Placer mining
- 1 — 6707—Underground mining
- 2 — 6709—Other (specify)

## Sanitary Engineering

- 13 — 6845—Air pollution
- 16 — 6802—Insect and rodent control
- 17 — 6803—Milk and food sanitation
- 7 — 6804—Radiological health engineering
- 9 — 6805—Refuse disposal
- 15 — 6806—Sewage and industrial wastes
- 19 — 6807—Water pollution control
- 22 — 6808—Water supply
- 6809—Other (specify)

## Other Engineering

- 94 — 6901—Agricultural engineering
- 6 — 6902—Architectural engineering
- 7 — 6903—Corrosion and preservation
- 4 — 6904—Fuels and combustion
- 3 — 6905—Human engineering
- 25 — 6906—Heat transfer
- 46 — 6907—Instrumentation and control
- 6908—Marine engineering
- 6 — 6910—Materials engineering
- 6911—Nuclear engineering
- 8 — 6912—Process engineering
- 10 — 6913—Product engineering
- 6 — 6914—Safety engineering
- 2 — 6909—Other (specify)

# Social Sciences, Humanities and Other Specialties

- 5 — Y001—Archeology
- 24 — Y002—Area studies
- 23 — Y003—Business administration
- 32 — Y004—Business and commerce
- 103 — Y005—Economics
- 10 — Y006—Education
- 2 — Y007—Fine and applied arts
- 10 — Y008—History
- 11 — Y010—History of science and mathematics
- 13 — Y011—Home economics
- 13 — Y012—International relations
- 7 — Y013—Journalism
- 7 — Y014—Law, jurisprudence
- Y015—Library and archival specialty
- 2 — Y016—Music
- 8 — Y017—Patent law
- 3 — Y018—Philosophy
- 20 — Y019—Political science
- 22 — Y020—Public administration
- 5 — Y021—Religion and theology
- 26 — Y022—Sociology
- 16 — Y023—Speech
- 7 — Y048—Anthropology
- 28 — Y052—Scientific and technical documentation
- 15 — Y062—Demography
- 4 — Y074—Industrial hygiene and occupational health
- 7 — Y009—Other (specify)





## SPECIALTIES LIST

## Field of Interest Rank

Basis for Rank as selected for this summary:

Field (Major) Rank from 1-11 -- includes all major categories in the list

Sub-Field (Intermediate)-- Rank from 1-52 -- includes all sub-field groups with 50 or more responses

Specialties (Minor) Rank from 1-76 -- includes all minor groups with 50 or more responses

Field Major Rank <u>From 1-11</u>	Sub-Field Intermediate Rank <u>From 1-52</u>	Specialties Minor Rank <u>From 1-76</u>
1. Biology Part 1 <u>1/</u>	8. Botany	3. Plant Physiology 15. Nutrition & Growth 41. Plant Anatomy 75. Dendrology
	9. Entomology	24. Control, chemical 27. Agricultural 33. Control, other 40. Insect Pests 48. Forest 65. Insect physiology, morphology
	13. Phytopathology	39. Fungal 52. Disease control, other 57. Disease control, chemical 69. Host resistance
	16. Genetics	8. Plant 53. Population studies
	21. Ecology	6. Plant ecology 58. Animal ecology
	23. Immunology <u>2/</u>	
	24. Nutrition	38. Animal nutrition 47. Nutrient value of foods
	29. Bacteriology	70. Microbial processes
	48. Pharmacology <u>2/</u>	

# THE REPORT OF THE COMMISSIONERS OF THE LAND OFFICE FOR THE YEAR 1871

The following is a summary of the principal facts and figures connected with the land office during the year 1871, as far as they are material to the public interest.

The total area of land in the United Kingdom, as ascertained by the Ordnance Survey, is 6,800,000 acres, of which 1,200,000 acres are in the hands of the Crown, and 5,600,000 acres are in the hands of private owners.

The total value of the land in the United Kingdom, as estimated by the Commissioners of the Land Office, is £1,200,000,000, of which £200,000,000 is in the hands of the Crown, and £1,000,000,000 is in the hands of private owners.

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## Specialties List -- Field of Interest Rank, cont.

Field Major Rank <u>From 1-11</u>	Sub-Field Intermediate Rank <u>From 1-52</u>	Specialties Minor Rank <u>From 1-76</u>
2. Inter- disciplinary Specialties	4. Biochemistry	34. Amino acids, peptides, proteins 55. Enzyme, co-enzyme 62. Carbohydrates 63. Biochemical mechanisms
	10. Agriculture and Food Chemistry	25. Pesticides (insect, herbi-, fungicides, etc.) 29. Fertilizers, plant growth regulators
	12. Soil Specialties	30. Soil Conservation 36. Fertility, management 61. Soil chemistry 66. Soil genesis, classification and mapping
	15. Physical Chemistry	None of the 26 items ranked among first minor codes
	28. Electronics	71. Instrumental measure- ment (principally electronic)
	38. Biophysics <u>2/</u>	None
	40. Photogrammetry, Photo-interpret- ation, Cartography <u>2/</u>	None
3. Mathematics and Statistics	1. Statistics	1. Design and analysis of experiments 2. Sampling techniques 5. Survey methods: including forms design, data collection and data processing 7. Analytical statistics 37. Multivariate analysis 46. Estimation and testing, parametric

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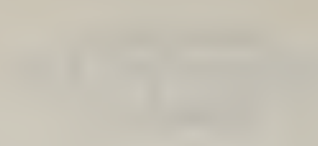
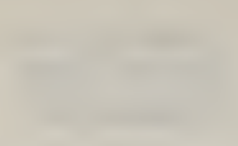
## Specialties List -- Field of Interest Rank, cont.

Field Major Rank <u>From 1-11</u>	Sub-Field Intermediate Rank <u>From 1-52</u>	Specialties Minor Rank <u>From 1-76</u>
3. Mathematics and Statistics	14. Numerical Methods and Computation	43. Digital computers, coding and programming
	17. Mathematics of Resource Use	20. Biometrics, biostatistics
	19. Analysis and <u>2/</u> Functional Analysis	None
	31. Probability	67. Applications of probability
	52. Algebra <u>2/</u>	None
4. Chemistry	2. Organic chemistry	10. Agricultural chemicals 17. Amino acids and proteins 22. Carbohydrates 49. Oils, fats, waxes 68. Wood, paper and cellulose
	3. Analytical chemistry	4. Chromatographic analysis 35. Absorption spectroscopy 44. Volumetric analysis 59. Solvent Extraction 60. Qualitative analysis 74. Gravimetric analysis
	26. Inorganic chemistry <u>2/</u>	
	5. Forestry and Range	11. Forestry management 23. Silviculture 31. Watershed management 50. Range management 51. Erosion control 64 Forest products 72. Forest protection
5. Biology Part 2 <u>3/</u>	6. Agronomy	12. Field crops 19. Crop breeding, hybridization 21. Crop management 26. Pasture and forage crops 28. Weed control 56. Seeds



## Specialties List -- Field of Interest Rank, cont.

Field Major Rank <u>From 1-11</u>	Sub-Field Intermediate Rank <u>From 1-52</u>	Specialties Minor Rank <u>From 1-76</u>
5. Biology Part 2 <u>3/</u>	33. Horticulture <u>2/</u>	
	43. Wildlife <u>2/</u>	
	45. Husbandry <u>2/</u>	
	47. Zoology <u>2/</u>	
6. Geochemistry thru Oceanography <u>4/</u>	7. Hydrology	9. Soil moisture 18. Evaporation and transpiration 32. Precipitation 54. Erosion and sedimentation 73. Surface waters 76. Ground waters
	22. Geology <u>2/</u>	
	30. Geography <u>2/</u>	
7. Engineering	18. Other Engineering	16. Agricultural Engineering
	25. Chemical Engineering <u>2/</u>	
	32. Engineering Mechanics <u>2/</u>	
	34. Sanitary Engineering <u>2/</u>	
	36. Mechanical Engineering <u>2/</u>	
	37. Industrial Engineering <u>2/</u>	
	42. Civil Engineering <u>2/</u>	



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## Specialties List -- Field of Interest Rank, cont.

Field Major Rank <u>From 1-11</u>	Sub-Field Intermediate Rank <u>From 1-52</u>	Specialties Minor Rank <u>From 1-76</u>
8. Physics	27. Optics 2/ 46. Thermal Phenomena 2/ 49. Solid State 2/ 50. Physics of Fluids 2/ 51. Mechanics 2/	
9. Atmospheric, Dynamics thru Meteorological Instrumentation	20. Climatology  39. Area Special- izations  41. Atmospheric Dynamics, Chemistry and Physics 2/	14. Microclimatology 45. Bioclimatology  42. Agricultural meteorology
10. Social Sciences, Humanities and other Specialties	11. Social Sciences.  None  6/	
		13. Economics
11. Psychology	35. Industrial and Personnel Psychology 2/	
1/ Anatomy, Bacteriology, Botany, Ecology, Entomology, Genetics, Immunology, Nutrition, Pathology, Pharmacology, Physiology, Phytopathology		
2/ No specialities with 50 or more responses		
3/ Virology, Zoology, Agronomy, Animal Husbandry, Fish and Wildlife, Forestry and Range, Horticulture		
4/ Geochemistry, Geodesy, Geology, Paleontology and Paleobotany, Solid- earth Geophysics, Geography, Hydrology, Oceanography		





## Specialties List -- Field of Interest Rank, cont.

- 5/ Atmospheric Dynamics; Chemistry and Physics; Climatology;  
Synoptic Meteorology; Area Specializations; Meteorological  
Instrumentation
- 6/ There was no sub-field (intermediate) for this group.  
Economics ranked 13 among the specialties (minor) group, and  
is shown in place of the sub-field.



## Methods

When the Requirements Inquiry was pretested it was suggested that the answer to the time in years would be different if one's primary interest was for methods. To find out if this was of significance the means were provided for identifying specialties title for which methods, procedures, or techniques were of primary concern. (Instruction called for the letter M to be written before the circled code number).

An analysis of survey returns shows that the average number of years for specialty titles marked "M" for methods differed very little from the average years for all reports of methods and non-methods.

Summaries of the Specialties List show data for methods, non-methods and totals and are available on EAM print outs for further study. However, for this report an analysis was made of the 75 specialty titles for which 50 or more responses (methods and non-methods) were received.

Of the 12 top ranking specialties titles (titles with 100 or more responses) there were 5 titles for which the number reporting methods exceeded the number not reporting methods. Of the 63 specialty titles with from 50 to 99 responses there were only 10 for which the number reporting methods exceeded the number not reporting methods.

Table SP-8 shows the number of responses and age of material for these 15 titles which were important for methods. For most of these titles the age of material for methods was about 1 year older than for all reports (methods and non-methods). In four instances the age for all reports was greater than for methods but the differences were small, ranging from 0.3 to 2.1 years. It appears that the age of material does not depend on whether the primary interest is for methods.

Judging from the 15 titles listed in table SP-9 the specialties for which methods were important were in the two major fields of Chemistry and Mathematics - Statistics.





## Specialties List -- Methods compared with Total

Table SP-9

Specialties for which the number reporting

Methods exceeded the number reporting Non-methods 1/

Specialty Code	Title	Number of responses and age of material				
		Methods		Total		Diff. in
		No.	Av. Yrs.	No.	Av. Yrs.	Av. Yrs. <u>2/</u>
0003	Analytical Chemistry-- Chromatographic Analysis	110	7.6	158	6.5	1.1
	Statistics:					
2801	Analytical statistics	66	13.3	128	12.2	1.1
2803	Design and analysis of experiments	152	13.6	256	12.7	0.9
2808	Sampling techniques	121	12.8	218	11.9	0.9
2810	Survey methods	88	10.4	152	10.3	0.1
	Analytical Chemistry:					
0007	Gravimetric analysis	34	14.1	50	14.7	* 0.6
0012	Qualitative "	39	14.4	59	15.9	* 1.5
0013	Solvent Extraction	41	9.7	56	10.1	0.4
0014	Volumetric anal.	47	12.5	67	14.6	* 2.1
	Math. of Resource Use--					
2303	Biometrics, Biostatistics	53	12.0	90	11.1	0.9
	Numerical Methods --					
2504	Digital computers, coding & programming	43	5.9	63	5.6	0.3
	Probability --					
2702	Application of Prob.	35	10.8	53	10.5	0.3
	Statistics:					
2804	Estimating & Testing, parametric	41	15.9	65	14.8	1.1
2805	Multivariate anal.	44	11.0	71	11.3	* 0.3
	Electronics --					
9406	Instrumental measurement	29	10.8	52	11.4	0.6

1/ Considered only specialties with 50 or more total responses of methods and non-methods excluding reports which did not show years.

2/ For the specialty titles marked \* the average age of material for methods is less than the average age for all responses; for unmarked titles the age for methods is greater than the age for all responses.



## AGE OF MATERIAL IN FIELDS OF INTEREST

### S U M M A R Y

The purpose of including the specialties list in the survey was to obtain some idea of the age of scientific publication that most scientists are likely to be using in their work and to see how this varies from discipline to discipline. An additional item to be derived from this material is the relative importance of the various fields of interest as related to disciplines.

The remarkable thing about all of the results dealing with the specialties list was the relative uniformity of agreement of the age of publications most frequently used. In nearly all cases the scientists agreed that the rate of consulting publications equal to or less than 15 years old declined in a rather steep linear fashion. Between 15 and 30 years the slope of the line was not as pronounced and after 30 years the need tended to level out to nearly a straight line. Therefore, the two pronounced breaking points in these graphs are 15 and 30 years with about 50 percent of the respondents needs fulfilled at 15 years and 80 percent filled at 30 years.

The four highest of the eleven major fields of interest ranked in their order of importance are: (1) Biology, part 1, (2) Interdisciplinary specialties, (3) Mathematics and statistics, and (4) Chemistry. The ten high ranking sub-fields of interest in order of importance are: (1) Statistics, (2) Organic chemistry, (3) Analytical chemistry, (4) Biochemistry, (5) Forestry and range conservation, (6) Agronomy, (7) Hydrology, (8) Botany, (9) Entomology, and (10) Agriculture and food chemistry.





## TABLES AND CHARTS

### Interest Scope:

The fields of interest for each of the 10 discipline groups are shown in table R18 and charts R20 and 21. The responses for the 11 major fields of interest are expressed as percentages which add to 100 percent for each discipline group. In chart R20 the bars identify the fields of interest within each discipline while in Chart R21 the bars identify the disciplines within each field of interest. Both charts are based on the same data as described above.

### Age of Material for all disciplines:

The percentage of respondents needing access to material by 5 year intervals is shown for 10 major field groups. Chart R22 shows lines for all 10 major fields without identifying the groups, while charts R23 and 24 show the items identified. Likewise for the sub-fields. Chart R25 shows the lines for 26 important sub-fields. Charts R26-32 identify the 26 sub-fields, with no more than 5 sub-fields (lines) on one chart.

### Age of Material -- discipline group compared with all disciplines:

Table R19 and charts R33-45 shows the age of material in sub-fields of interest, comparing all disciplines with selected disciplines for a particular sub-field. All disciplines with 99 or more responses within a sub-field were selected to be compared with all disciplines. In most cases only one discipline group qualified within a sub-field of interest. Exceptions were the statistics field of interest for which there were two discipline groups with 99 or more responses, namely group 1. Economists, etc. and group 5. Forestry; and the geochemistry thru oceanography field





of interest with disciplines group 5. forestry and group 8,9, engineers. With few exceptions the age of material line for the important discipline group overlapped the line for all discipline groups, or showed the same slope although on a little different level.



F I E L D S   O F   I N T E R E S T S

- Table R18 Major Fields of Interest by the Scientists Disciplines group as a percentage of total Responses for each discipline
- R19 Age of material in Sub-Fields of Interest - Discipline group compare with all scientists
- Fig. R20 Major Fields of Interest in each Discipline. Responses for each Discipline = 100%
- R21 Discipline in each Major field of Interest. From same statistics as R20

Age of Material in Major Fields of Interest:

- Fig. R22 All 10 major fields
- R23 5 major fields
- R24 5 major fields

Age of material in selected sub-fields of interest:

- Fig. R25 All 26 sub-fields
- R26 Biology part 1, 5 sub-fields
- R27 Biology part 1, 4 " "
- R28 Interdisciplinary specialties, 4 sub-fields
- R29 Interdisciplinary specialties, 3 " "
- R30 Math & Statistics, 4 sub-fields
- R31 Chemistry, 3 sub-fields
- R32 Biology, Part 2, 3 sub-fields

Age of Material in sub-fields - Discipline group closely related to the sub-fields compared with all scientists:

Field of Interest

	<u>Major Field</u>	<u>Sub-Field</u>	<u>Related Disciplines</u>
Fig. R33	Chemistry	Analytical Chemistry	(10) Chemistry, Physics
R34	"	Organic Chemistry	" " "
R35	Interdisciplinary	Agr. & Food Chemistry	" " "
R36	"	Biochemistry	" " "
R37	"	Physical Chemistry	" " "
R38	"	Soil Specialties	(6) Soil Science, geology
R39	Biology, Part 1	Botany	(5) Forestry
R40	"	Phytopathology	(3) Plant pathology, physiology
R41	"	Entomology	(2) Entomology, Nematology
R42	Biology, Part 2	Forestry & Range	(5) Forestry
R43	"	Agronomy	(4) Agronomy, Horticulture
R44	Math. & Statistics	Statistics	(1) Agricultural Economics (5) Forestry
R45	Geochemistry thru Oceanography	Hydrology	(5) Forestry (7,8,9) Engineering

Tables 1 - 11 Summary of age of material in 5 year intervals, for major fields, and specified sub-fields





MAJOR FIELDS OF INTEREST BY THE SCIENTIST'S DISCIPLINE GROUPS  
Percent of Total Responses for Each Discipline

Table R 18

Discipline Field of Interest 2/ Code	Civil Service Class Series 1/ Percent of Total Responses for Each Discipline										
	1 Agriculture Economics, Home Econ.	2 Entomology	3 Plant Physiology Bacteriology	4 Agronomy Horticulture	5 Forestry	6 Soil Science	7,8,9 Engineering	10 Chemistry	11 Technology	12 Genetics Husbandry	All Discipline
3 Atmospheric, etc.	2.0	2.4	2.5	6.1	6.8	7.2	6.0	2.3	2.4	1.5	4.3
1 Geochemistry, etc.	6.1	2.4	0.7	4.2	11.7	21.9	12.0	0.6	1.6	1.3	7.4
4 Physics	0.4	1.2	2.0	0.7	3.2	6.0	9.4	6.3	2.4	3.4	4.4
0 Chemistry	1.8	10.3	10.2	3.7	2.1	10.1	5.1	40.2	14.3	7.5	12.4
2 Math. & Statistics	34.7	10.7	3.5	7.6	19.4	12.3	16.4	5.2	19.8	13.4	14.2
7 Biology, Part 1	5.7	50.8	51.1	38.7	16.8	6.0	3.2	11.6	12.7	40.3	19.0
8 Biology, Part 2	11.9	11.0	10.2	24.1	21.8	9.5	7.9	2.0	10.3	13.8	11.3
9 Inter Disciplinary	10.2	9.5	18.7	9.6	9.5	20.1	10.2	28.3	18.3	15.1	15.6
6 Engineering	4.7	1.4	0.8	1.1	3.3	5.9	27.5	3.1	10.3	1.1	7.1
Y Social Science	16.4	0.3	0.3	1.8	3.3	1.0	0.9	0.4	0	0	2.7
5 Psychology	6.1	0	0	2.4	2.1	0	1.4	0	7.9	2.6	1.6
All Fields											
(sum of above)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Responses	1032	654	753	541	1553	982	1553	1859	126	614	9667
No. of Scientists reporting	104	77	85	55	123	41	80	161	13	51	790
Responses per scientist	9.9	8.5	8.9	9.8	12.6	24.0	19.4	11.5	9.7	12.0	12.2

1/ Class series names are shown in the heading for classes with more than 50 USDA Scientists in the population.

2/ For complete description of field of interest see the specialties list and text on method of analysis.



Table R 19

SPECIALTIES LIST -- SUB-FIELDS  
Discipline Group Field of Interest Compared with all Scientists  
Respondents Wanting Access to Material Published Within Dates  
Percent of Total Responses

Age of Material  Years Measured From 1962	Chemistry Sub-Fields			
	Analytical Chemistry (00)		Organic Chemistry (02)	
	All  Discipline	Chemistry, Physics (Group 10) %	All  Discipline	Chemistry, Physics (Group 10) %
0 (1962)	100.0	100.0	100.0	100.0
5	87.5	88.3	83.6	84.8
10 (1952)	67.0	68.7	69.2	70.6
15	37.4	35.4	46.6	48.0
20 (1942)	29.8	28.9	38.0	41.4
25	17.8	17.5	24.7	28.7
30 (1932)	9.5	12.0	15.2	21.3
35	5.9	7.2	8.3	11.5
40 (1922)	5.9	7.2	8.1	11.3
45	4.9	5.8	7.0	9.8
50 (1912)	4.9	5.8	7.0	9.8
More than 50	0	0	0.8	1.2
Number of Responses				
Showing age of material		473	291	640
Averages:				408
Mode - Year		10.0	10.0	10.0
Mean - Year		13.8	14.1	17.4

114  
111  
111



SPECIALTIES LIST -- SUB-FIELDS (Cont.)

Table R 19 Cont.

Percent of Total Responses

Age of Material	Interdisciplinary Sub-Fields				
	Agriculture and Food Chemistry (91)	Biochemistry (92)	Physical Chemistry (97)	Soil Specialties (99)	
	Discipline	Discipline	Discipline	Discipline	
Years Measured From 1962	All Chemistry, Physics (Group 10) %	All Chemistry, Physics (Group 10) %	All Chemistry, Physics (Group 10) %	All Chemistry, Physics (Group 10) %	All Soil Science, Geology (Group 06) %
0 (1962)	100.0	100.0	100.0	100.0	100.0
5	86.1	85.3	82.0	83.2	88.7
10 (1952)	68.2	74.3	65.9	69.7	79.4
15	46.0	45.9	41.8	44.3	49.0
20 (1942)	43.2	44.0	34.1	36.1	41.7
25	27.5	26.6	16.3	16.4	22.5
30 (1932)	15.7	18.3	9.6	11.5	15.7
35	9.9	11.9	6.0	5.8	10.8
40 (1922)	9.9	11.9	5.8	5.8	10.3
45	7.1	5.5	3.8	5.3	8.8
50 (1912)	7.1	5.5	3.8	5.3	8.8
More than 50	1.2	2.8	0	0	0.5
Number of Responses					
Showing age of					
Material 324					
109					
416					
208					
204					
130					
275					
104					
Averages:					
Mode - Yr. 10.0					
Mean - Yr. 16.7					
10.0					
17.5					
10.0					
13.8					
10.0					
14.5					
10.0					
17.3					
10.0					
16.3					
25.0					
21.7					
20.0					
23.4					





SPECIALTIES LIST -- SUB-FIELDS (Cont.)

Table R 19 Cont.

Percent of Total Responses

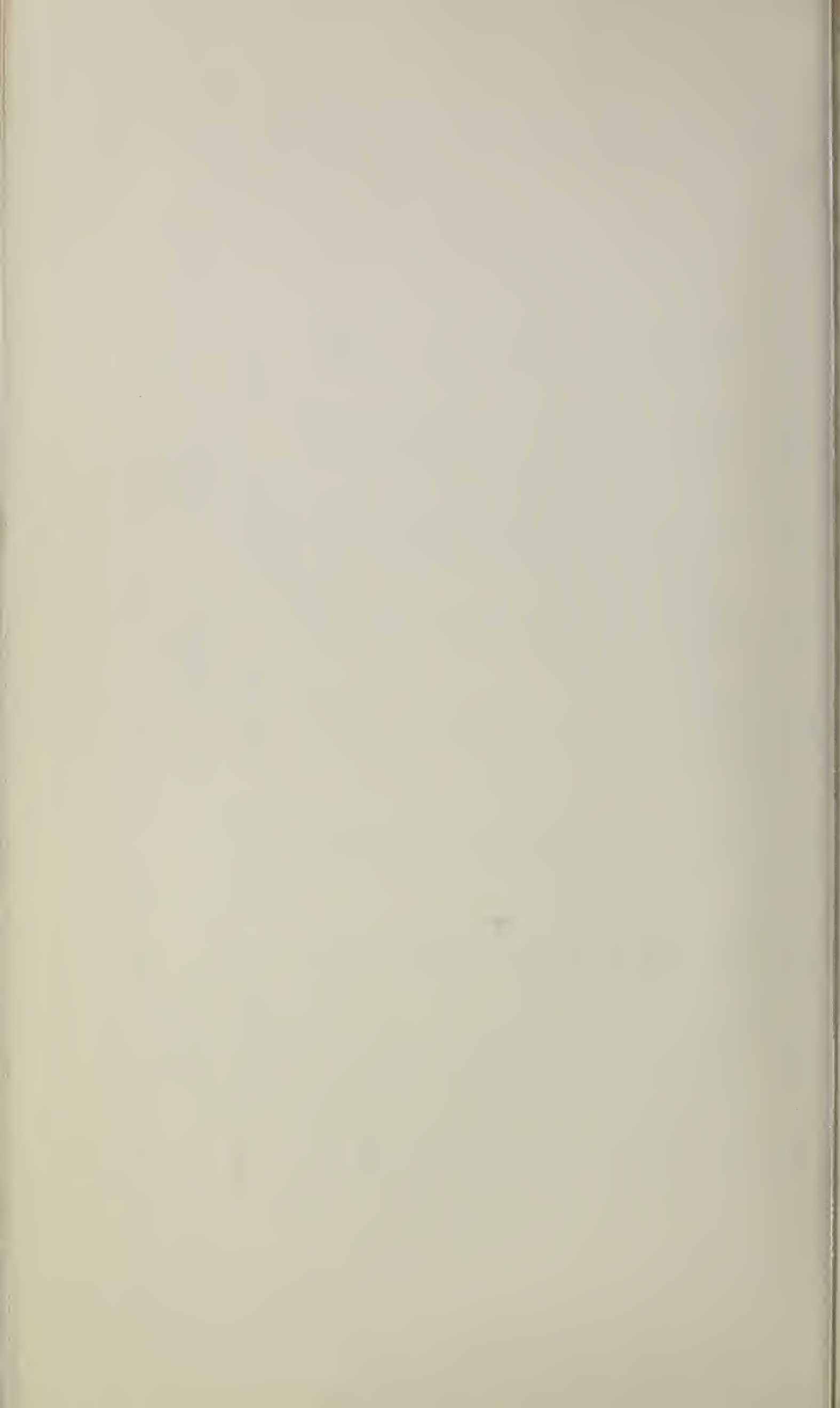
Age of Material Years Measured From 1962	Biology, Part I							
	Botony (70) <u>Discipline</u>		Phytopathology (79) <u>Discipline</u>		Entomology (72) <u>Discipline</u>			
	Forestry (Group 05)		ALL Plant Pathology, Physiology, etc. (Group 03)		ALL Entomology Nematology (Group 02)			
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5	90.8	96.4	87.7	87.1	86.3	87.4		
10 (1952)	77.4	88.4	76.6	76.6	73.0	78.7		
15	61.8	72.3	52.8	52.4	53.2	62.2		
20 (1942)	56.8	67.0	46.5	46.8	49.1	56.3		
25	42.4	52.7	35.3	36.3	37.2	45.4		
30 (1932)	28.2	38.4	23.4	29.0	18.3	23.0		
35	23.2	38.4	17.8	25.6	15.4	20.7		
40 (1922)	23.2	29.5	17.5	25.0	15.4	20.7		
45	20.5	26.8	16.4	25.0	13.4	18.4		
50 (1912)	20.5	26.8	16.4	25.0	13.4	18.4		
More than 50	5.0	1.8	2.6	5.6	1.7	2.9		
Number of Responses								
Showing Age of material	380	112	269	124	344	174		
Averages: Mode - Year	--	50.0	10.0	10.0	10.0	10.0		
Mean - Year	25.3	27.0	21.0	24.4	19.4	22.4		



## Table R 19 Cont.

## Percent of Total Responses

117



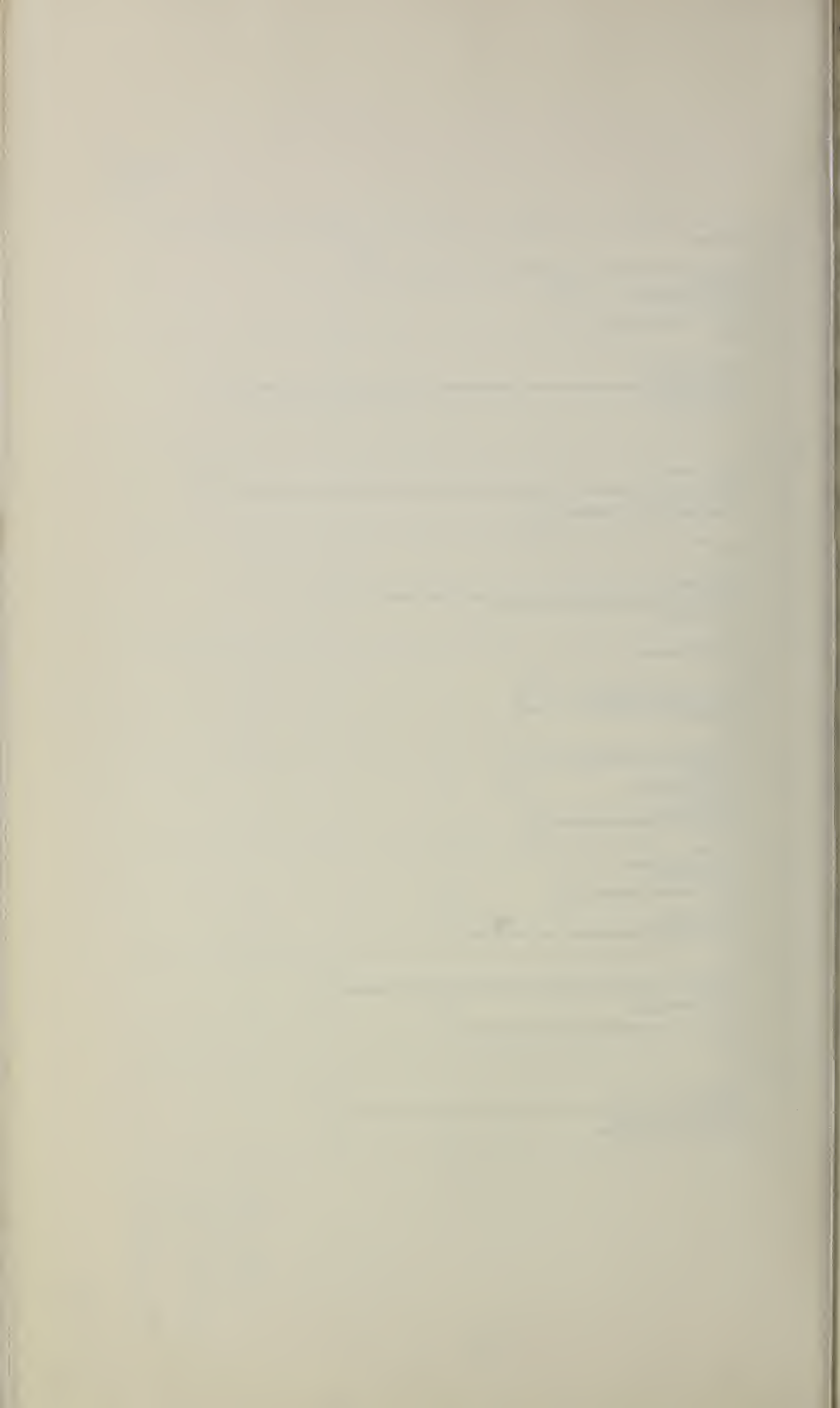


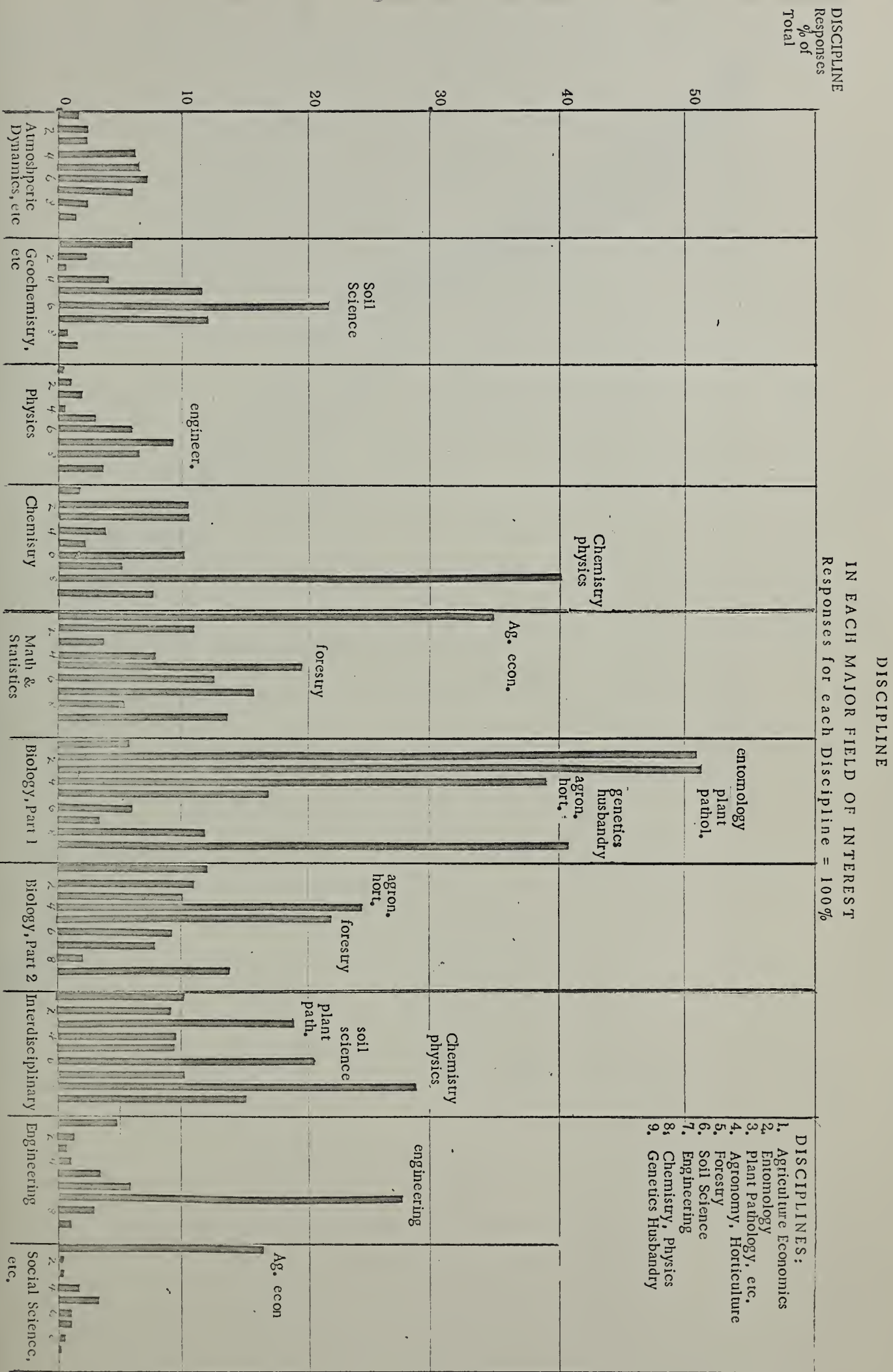
MAJOR FIELDS OF INTEREST IN EACH DISCIPLINE

Responses for each Discipline= 100%



Fig. R 20





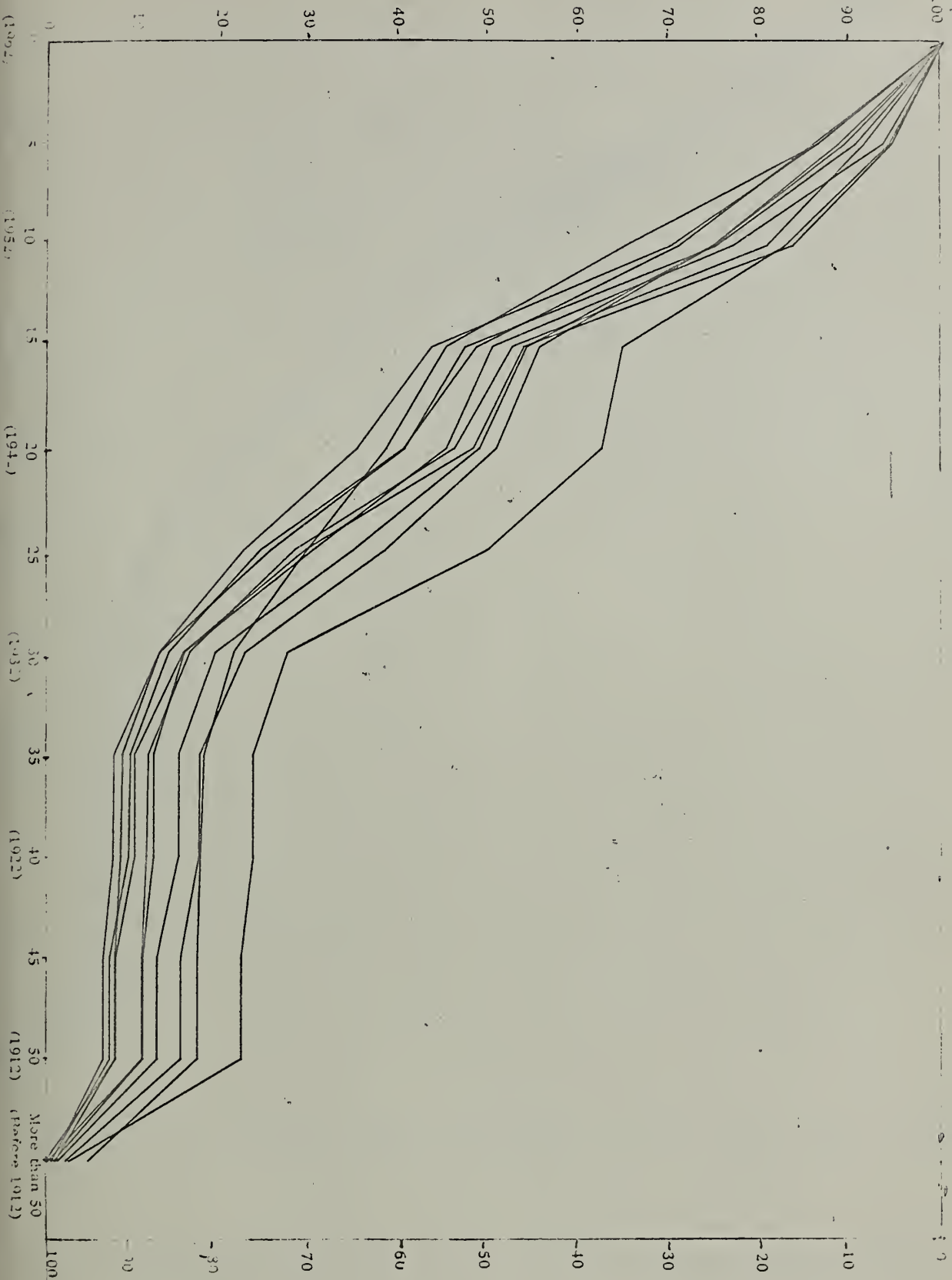


MAJOR FIELDS, ALL ITEMS

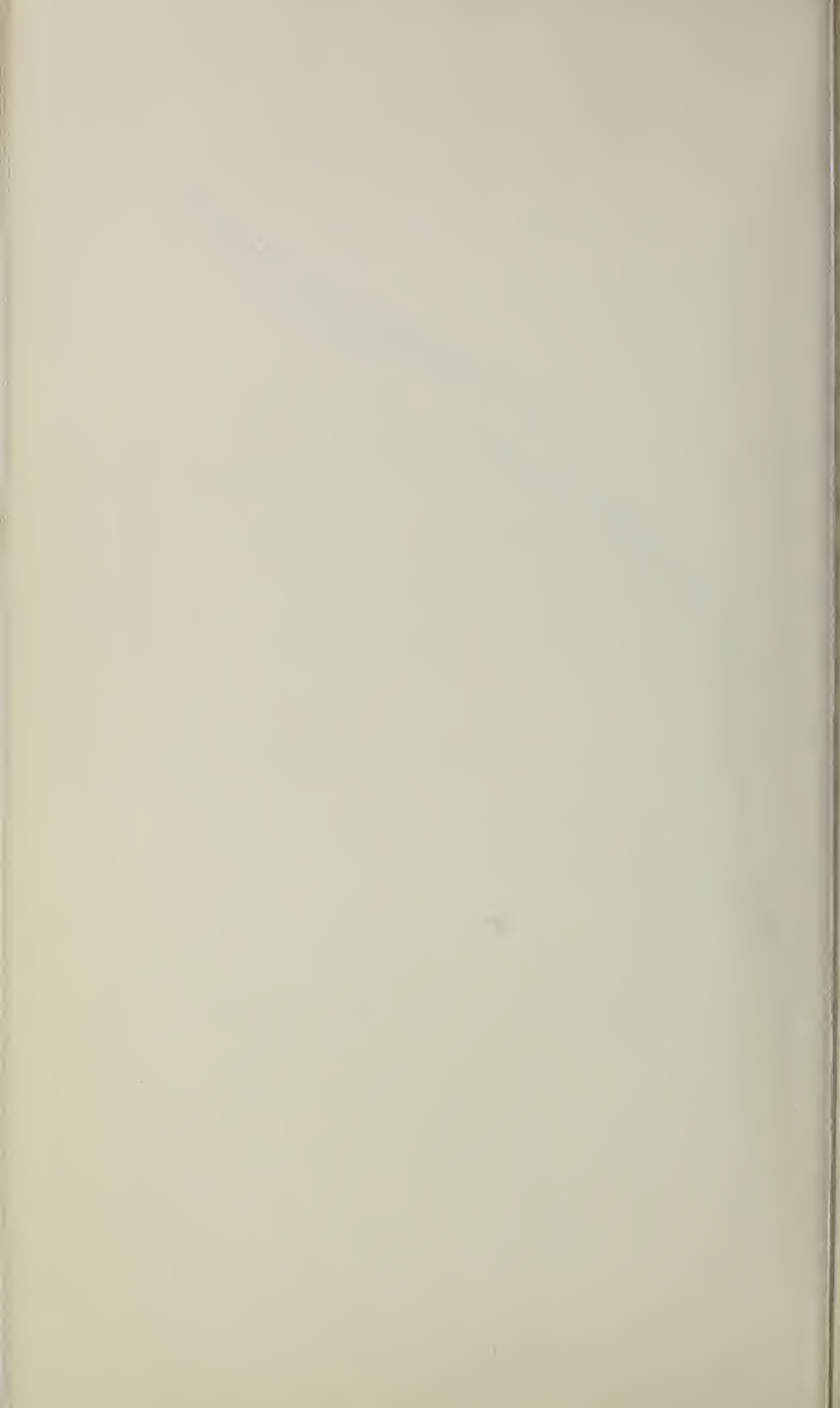
Percent  
need access  
as % of total  
respondents

OSDA Research Reports Requirements  
for access to material published within  
dates measured from date of survey - 1962

Percent  
of respondents  
who are  
of the following  
ages

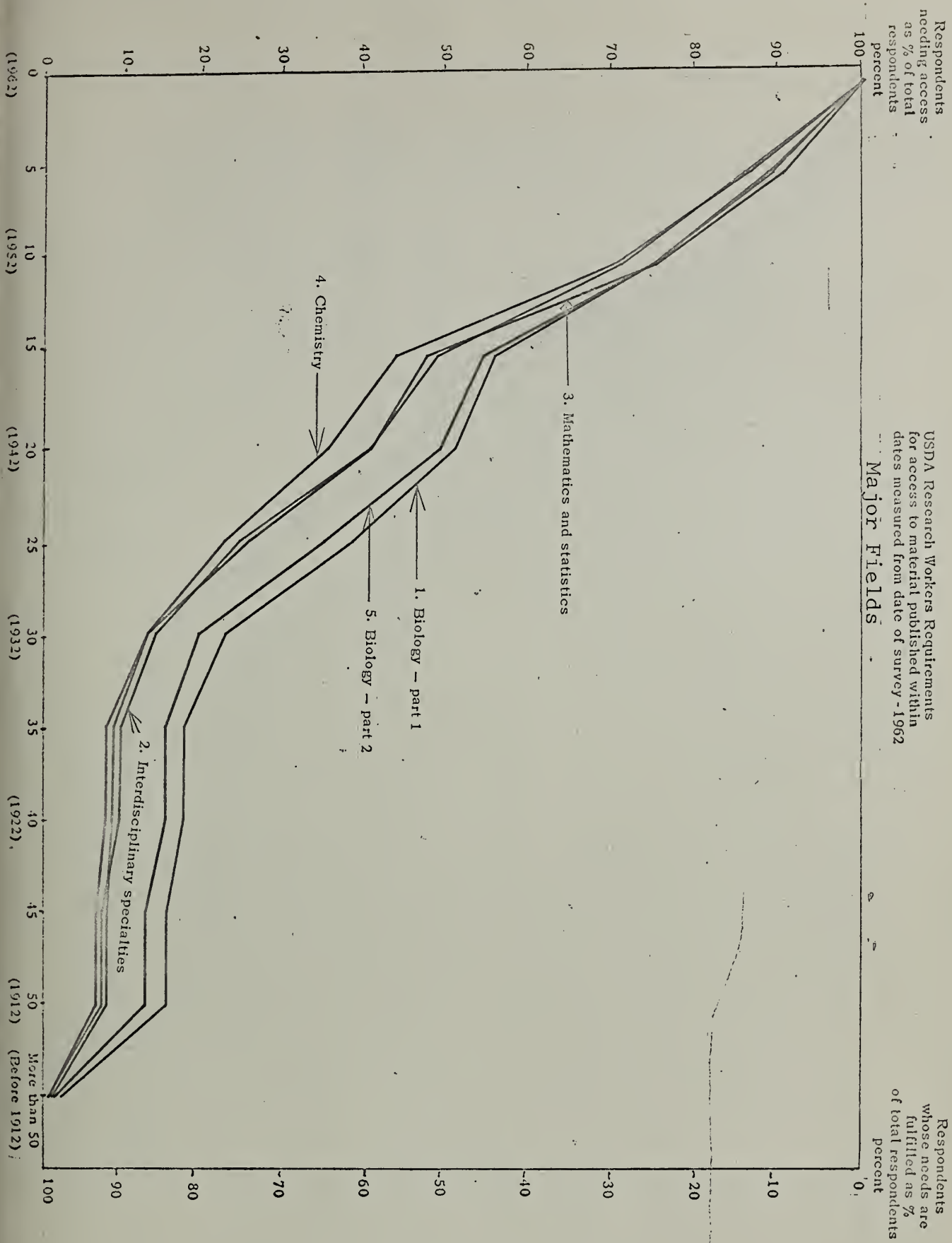


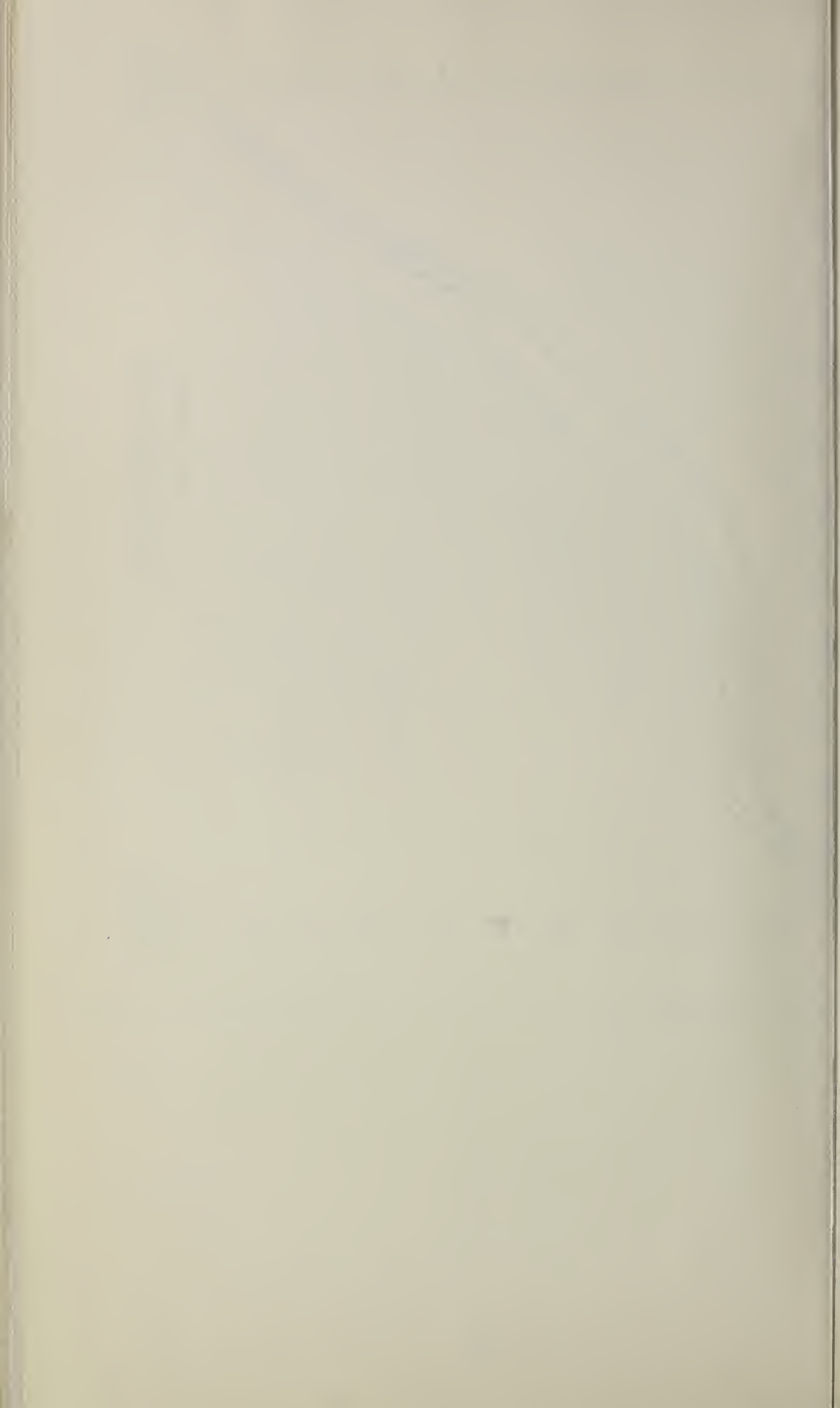




AGE OF MATERIAL IN FIELDS OF INTEREST

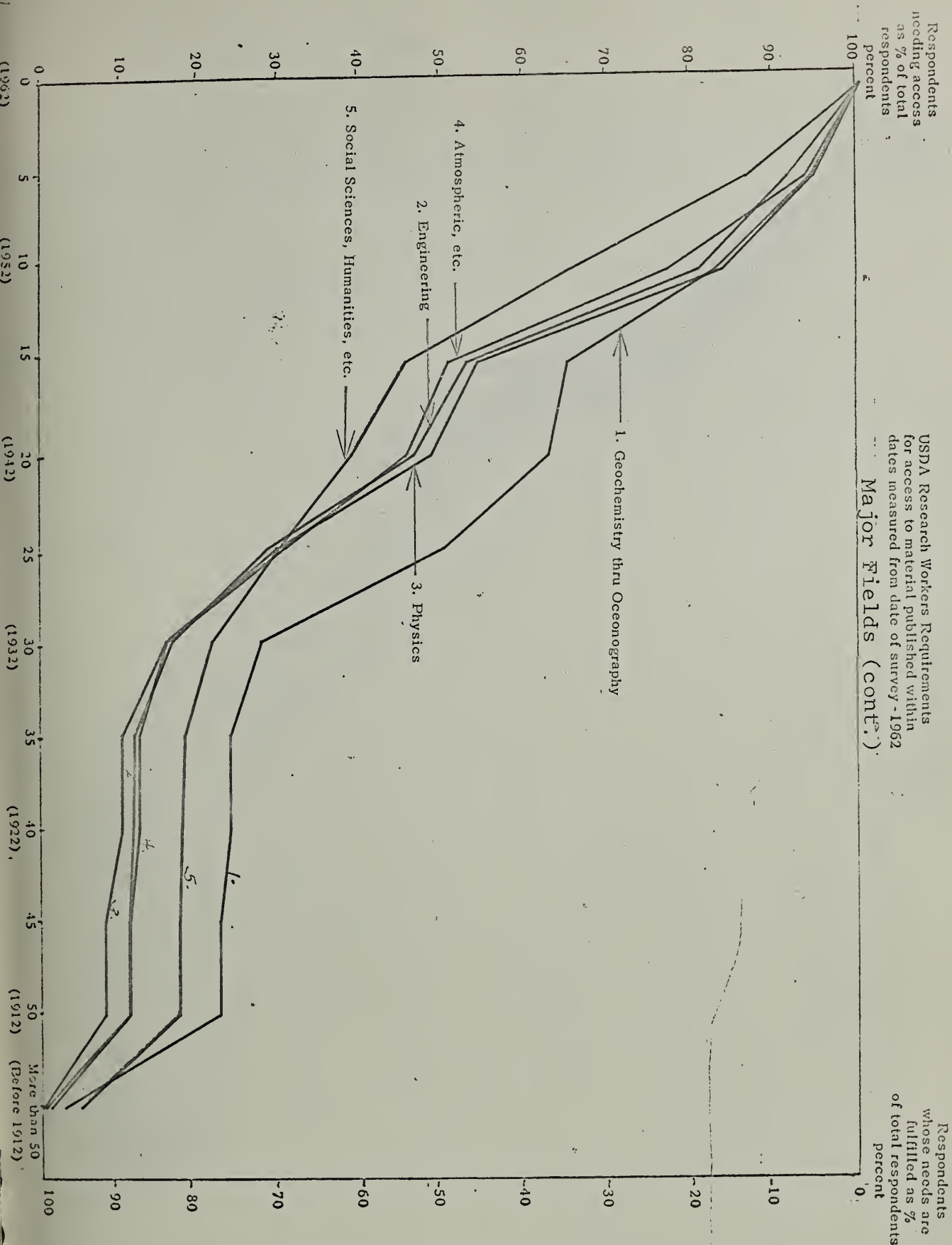
Fig. R 23





AGE OF MATERIAL IN FIELDS OF INTEREST

Fig. R 24





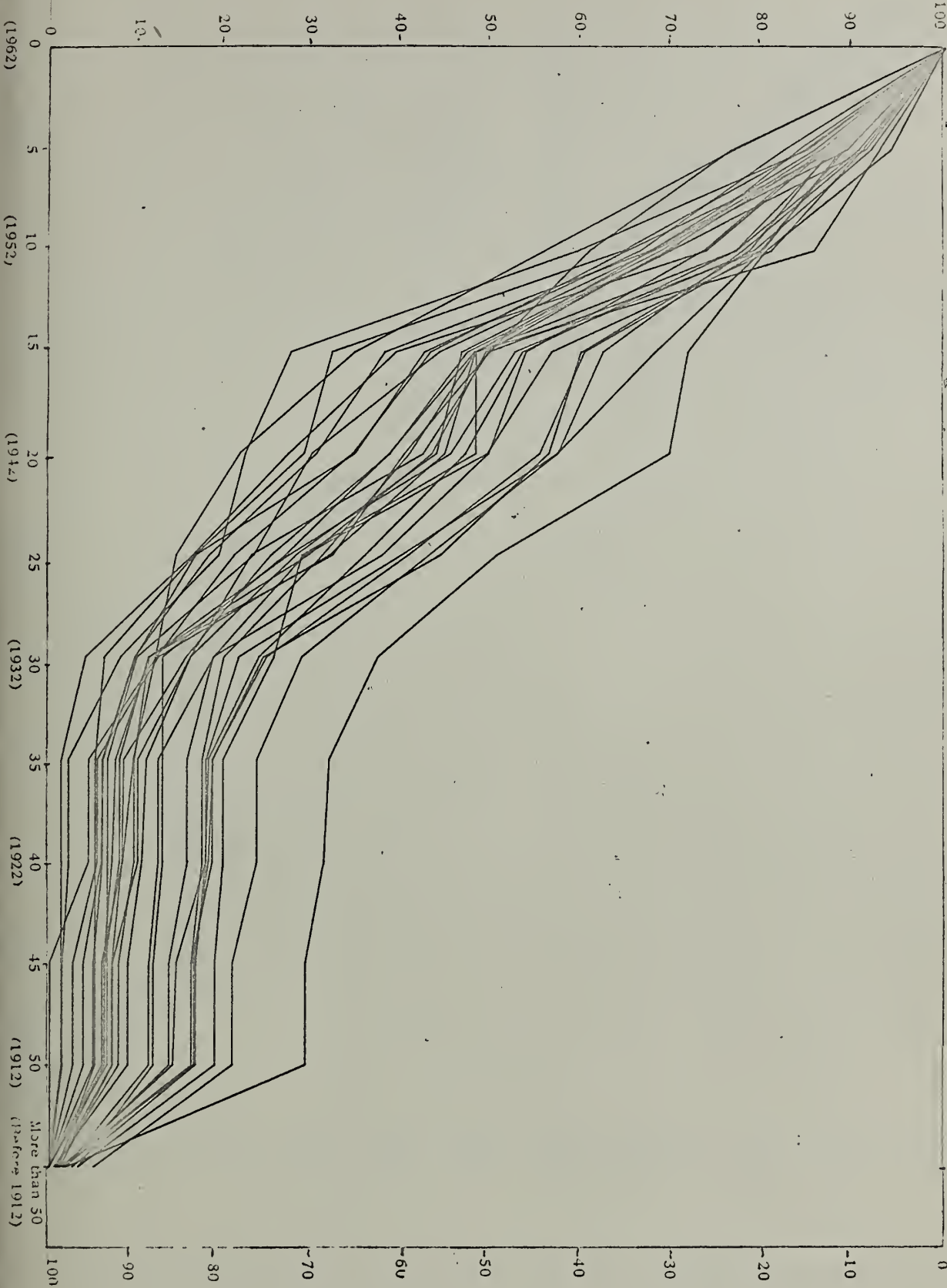


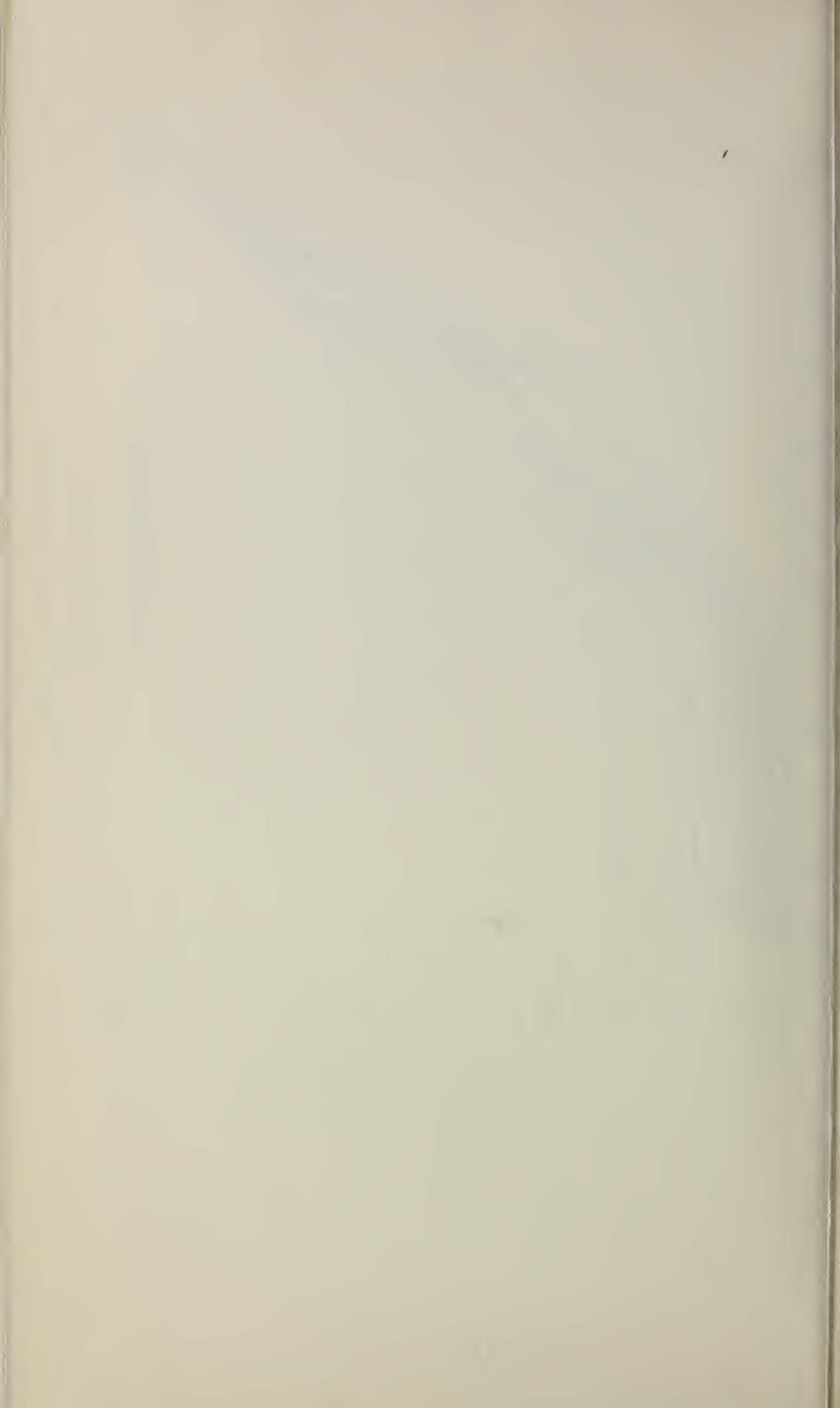
SUB-FIELDS, ALL ITEMS

Respondents  
needing access  
as % of total  
respondents  
percent

USDA Research Workers Requirements  
for access to material published within  
dates measured from date of survey - 1962

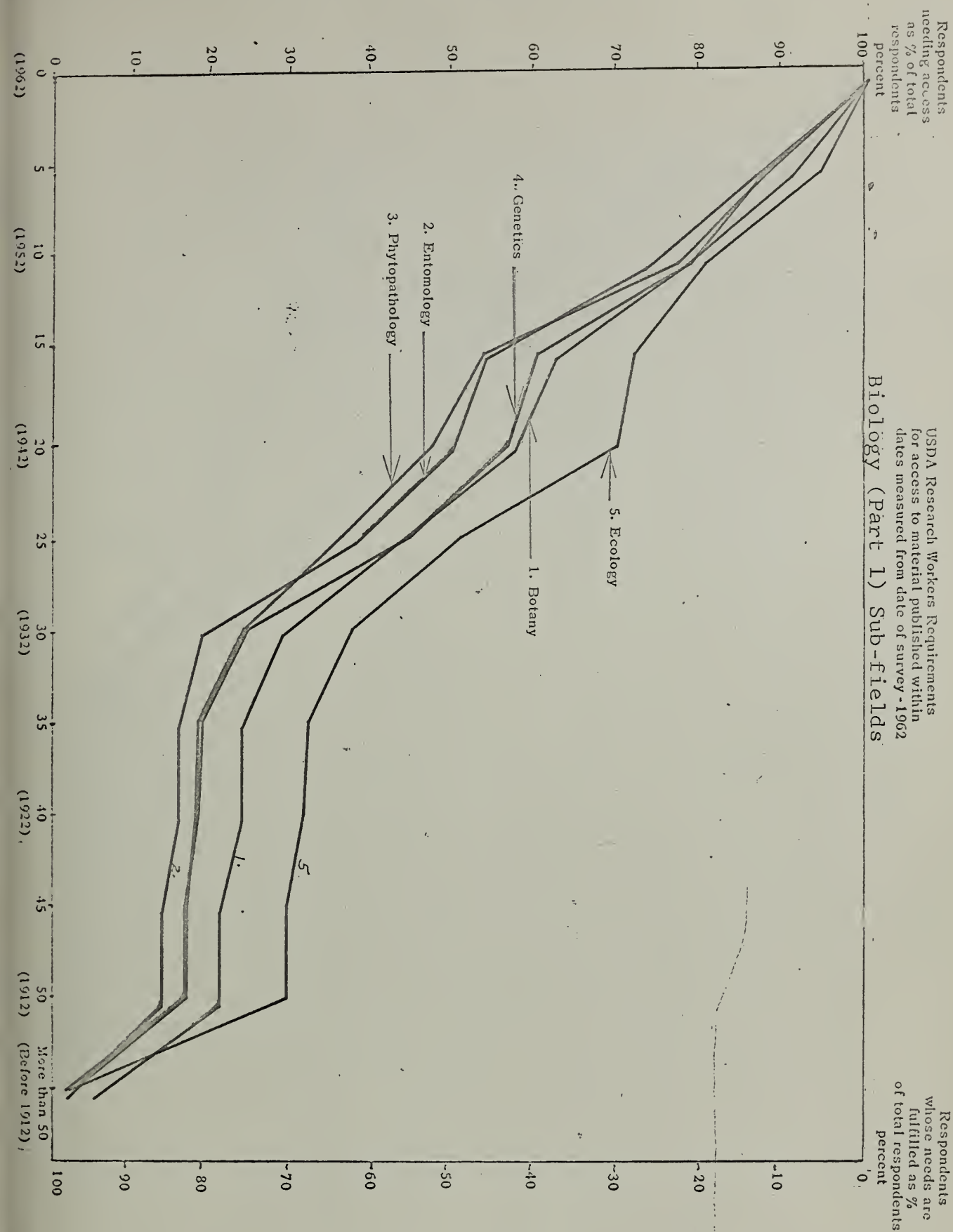
Respondents  
whose needs are  
fulfilled as %  
of total respondents  
percent



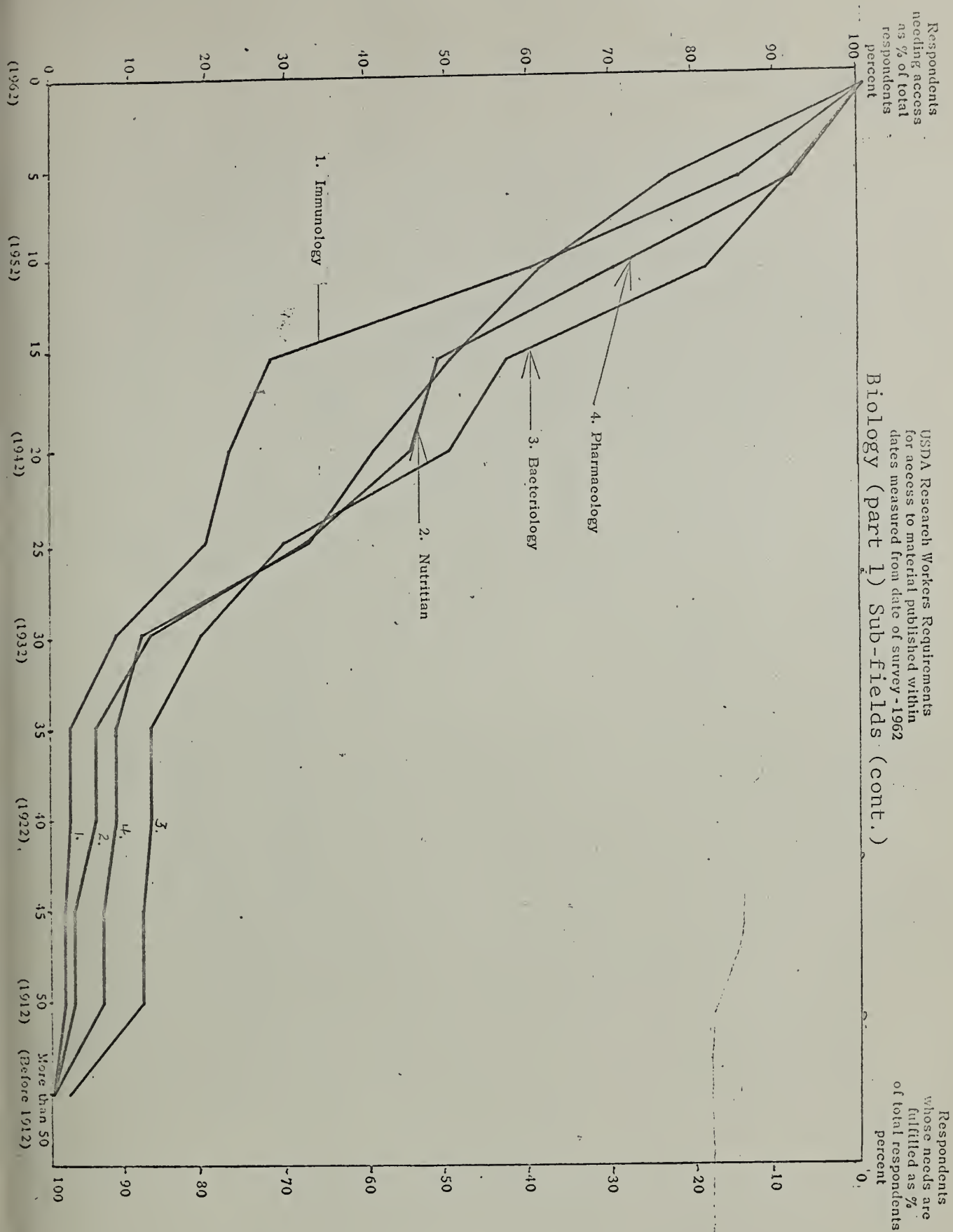


AGE OF MATERIAL IN FIELDS OF INTEREST

Fig. R 26





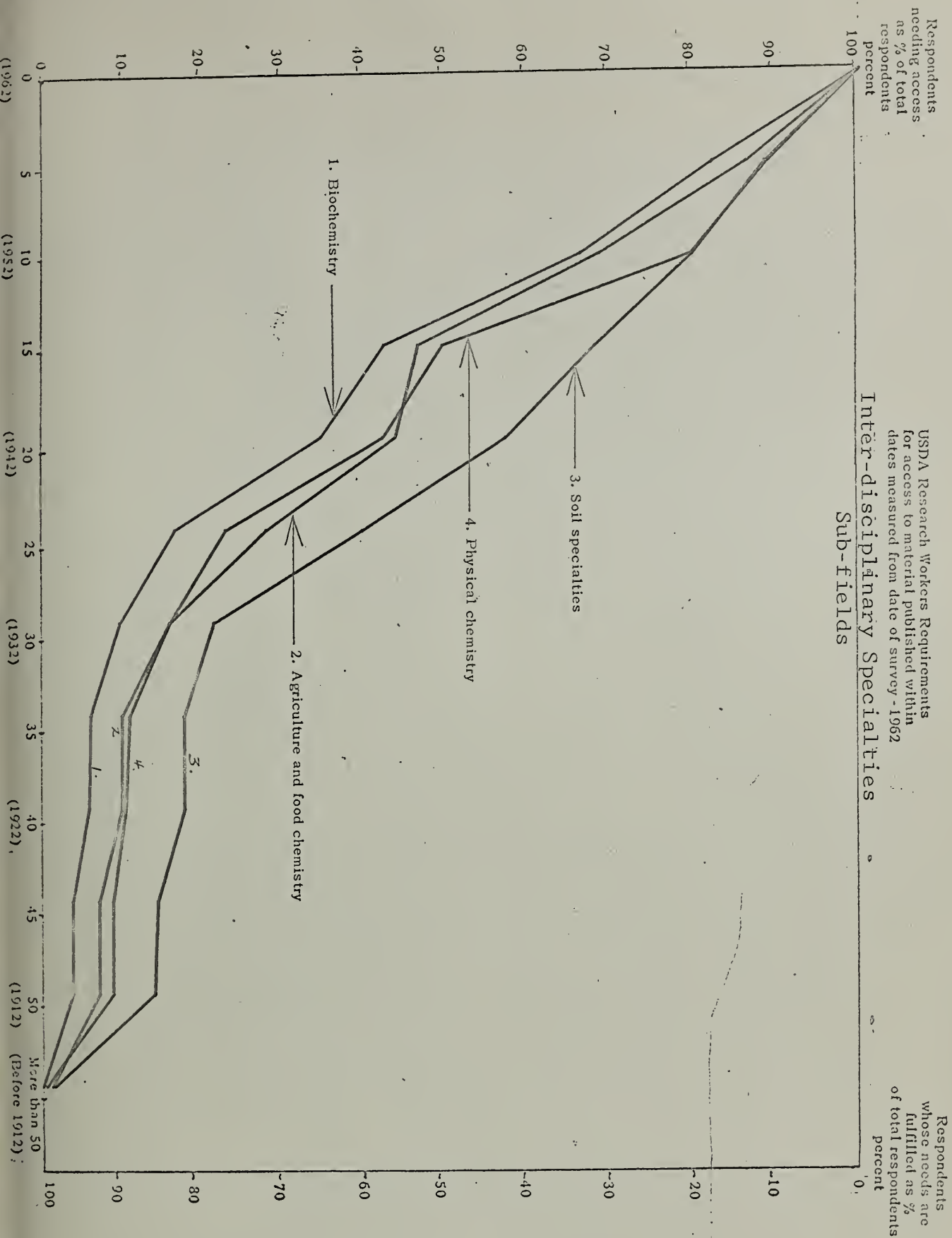






AGE OF MATERIAL IN FIELDS OF INTEREST

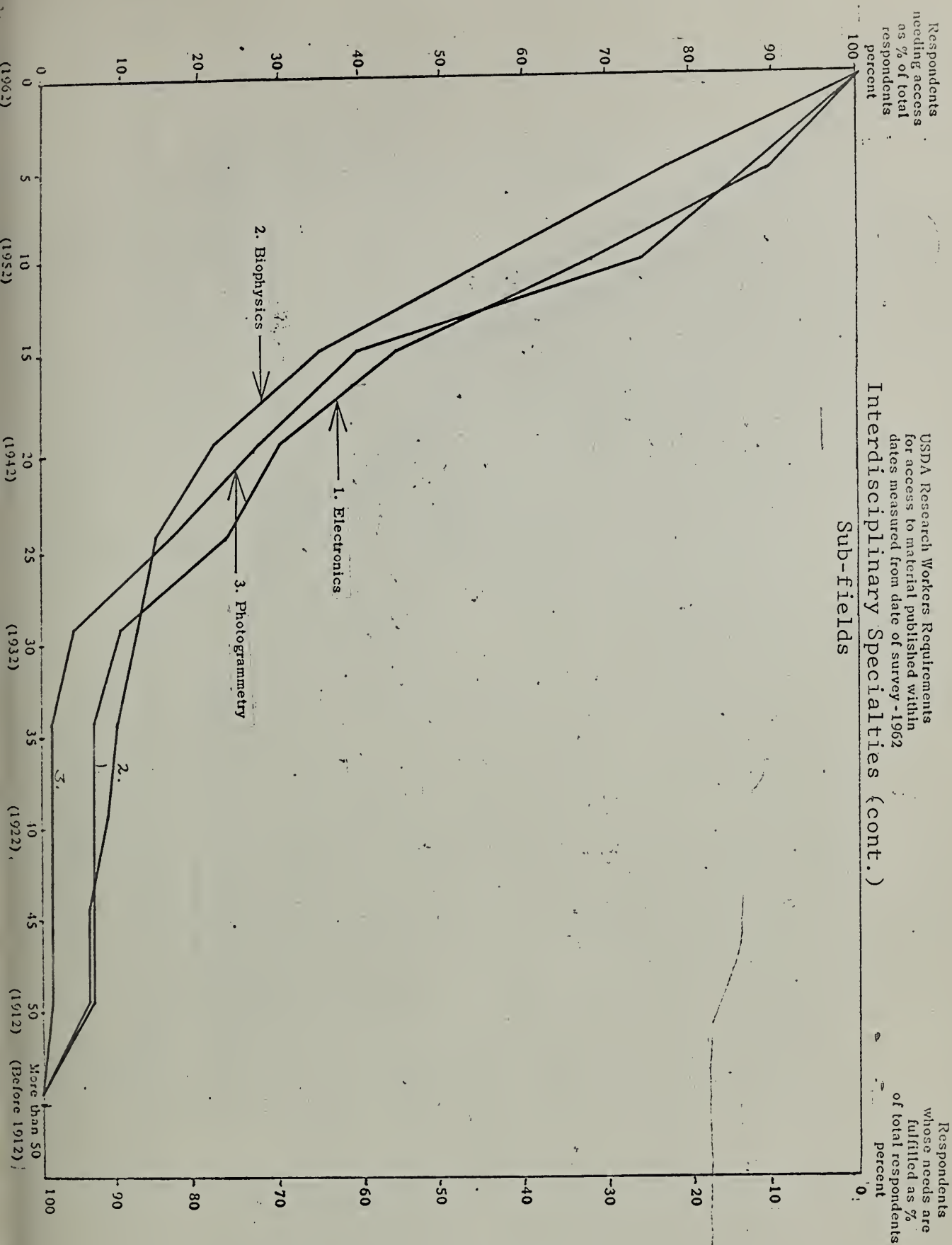
Fig. R 28





AGE OF MATERIAL IN FIELDS OF INTEREST

Fig. R 29

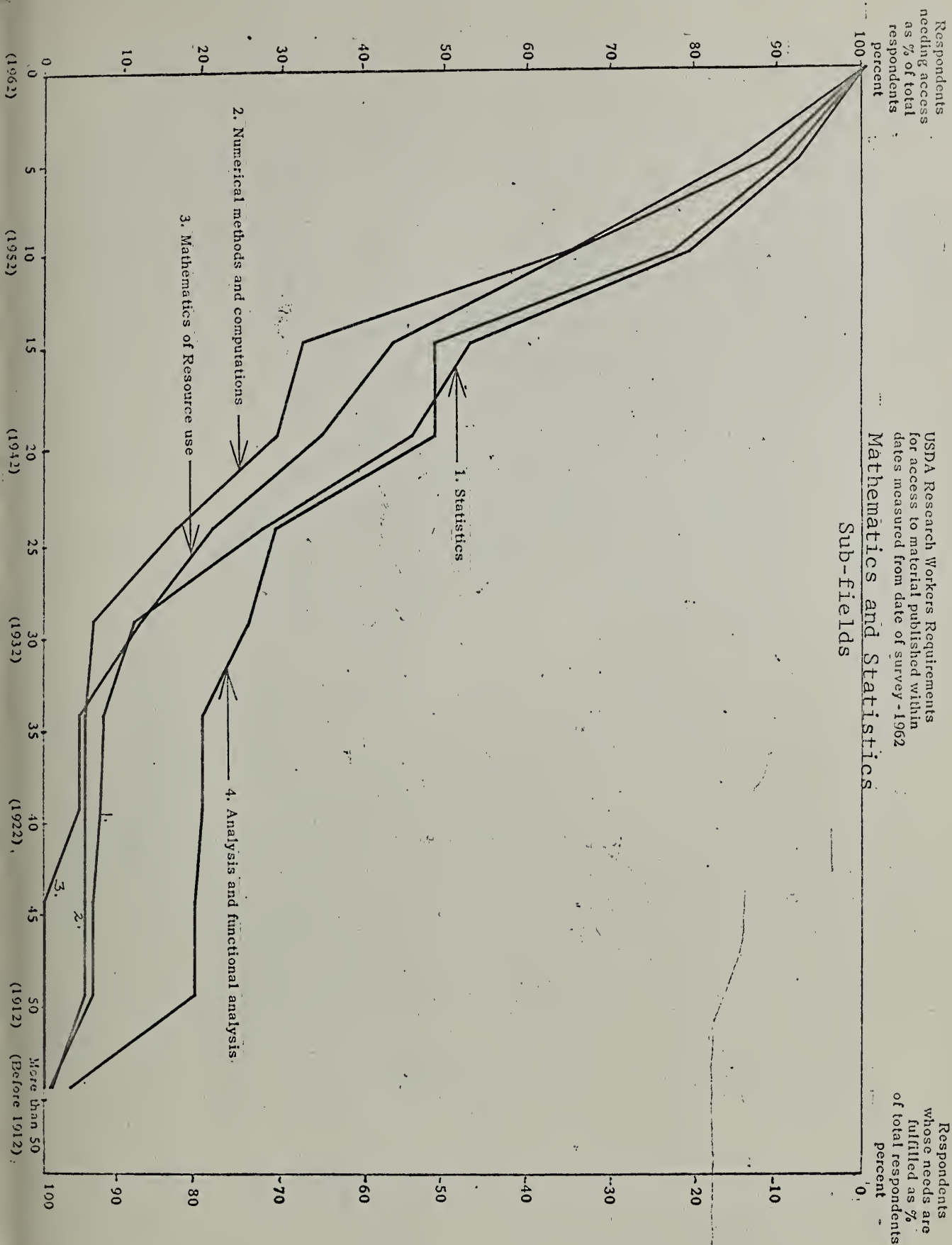


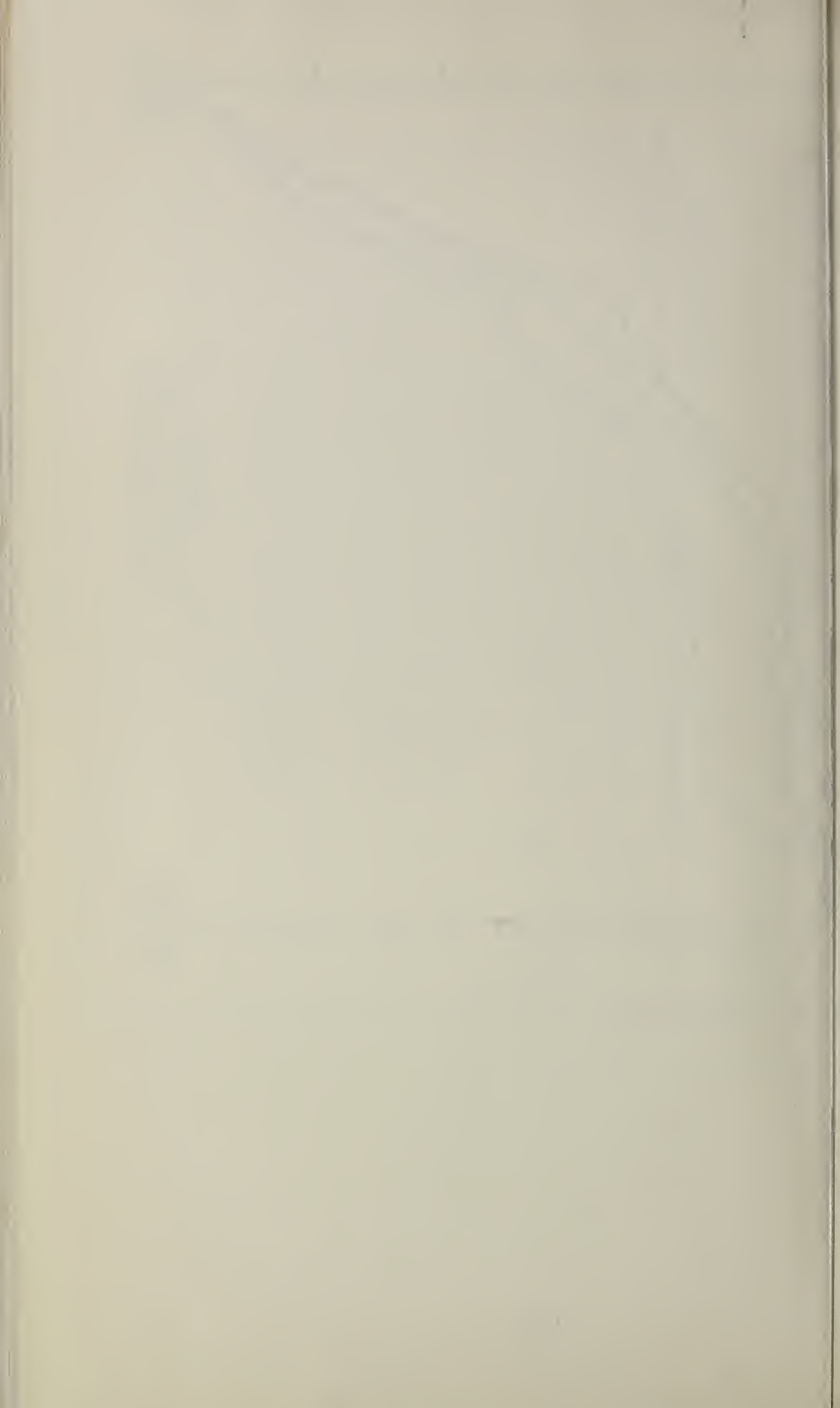




AGE OF MATERIAL IN FIELDS OF INTEREST

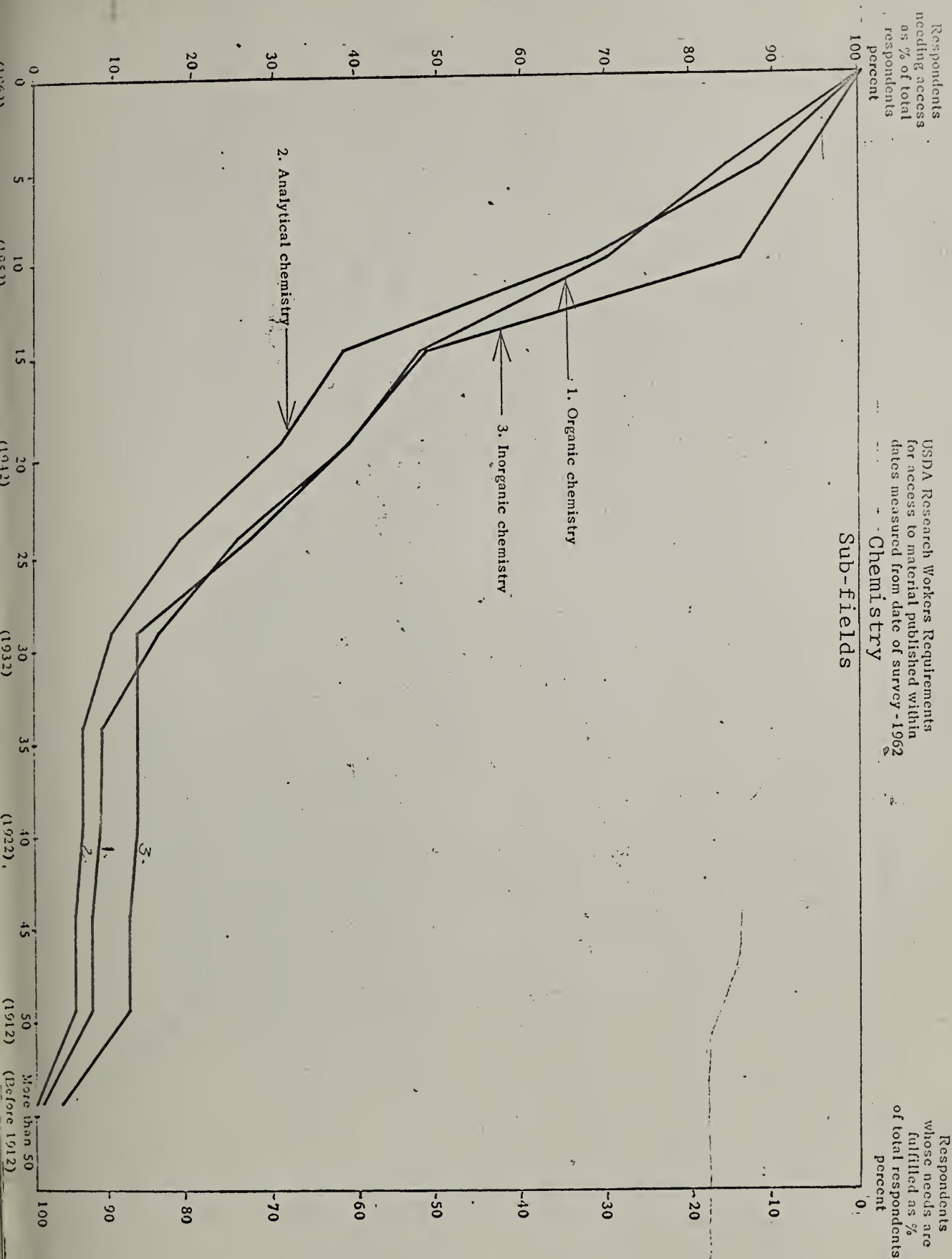
Fig. 30

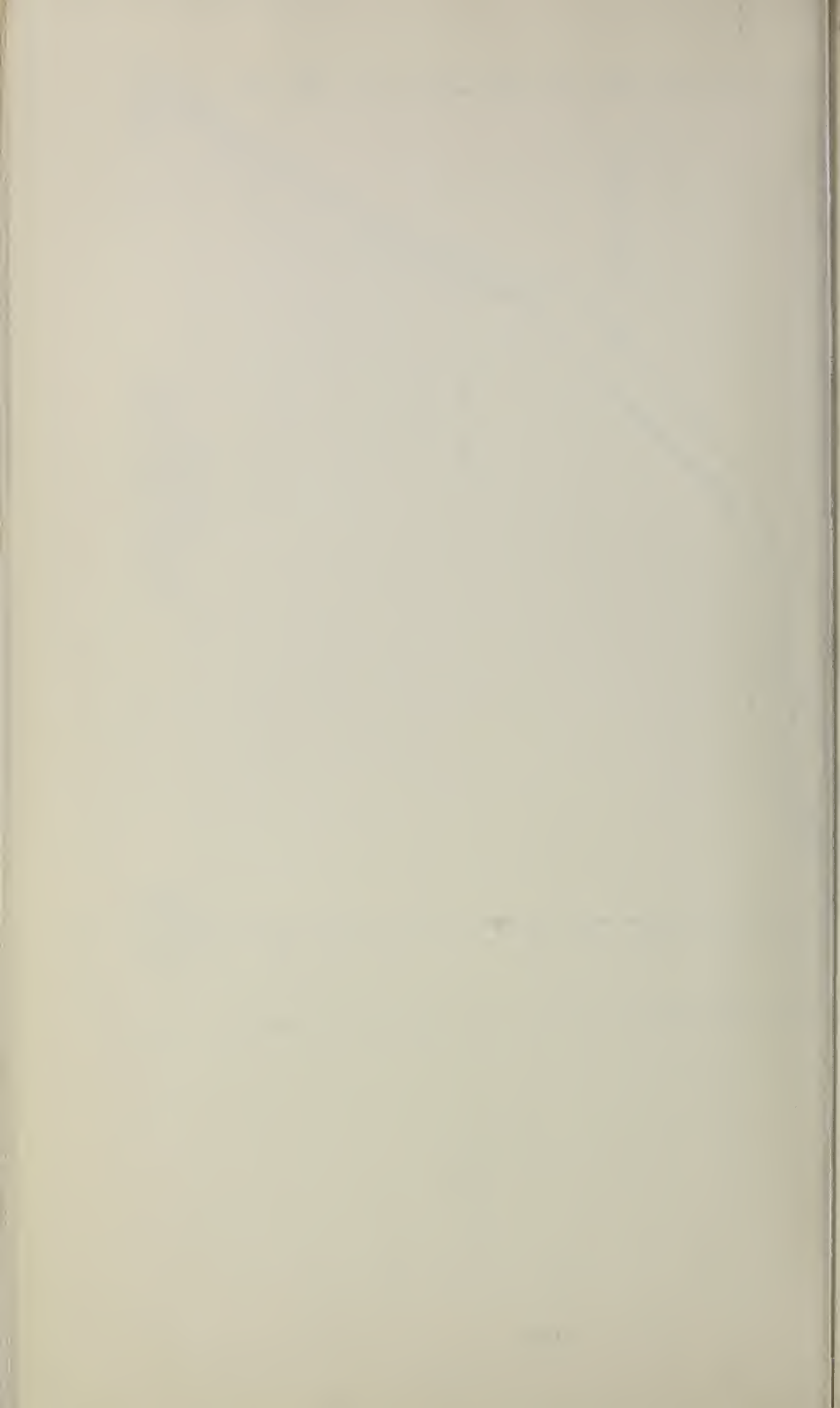




AGE OF MATERIAL IN FIELDS OF INTEREST

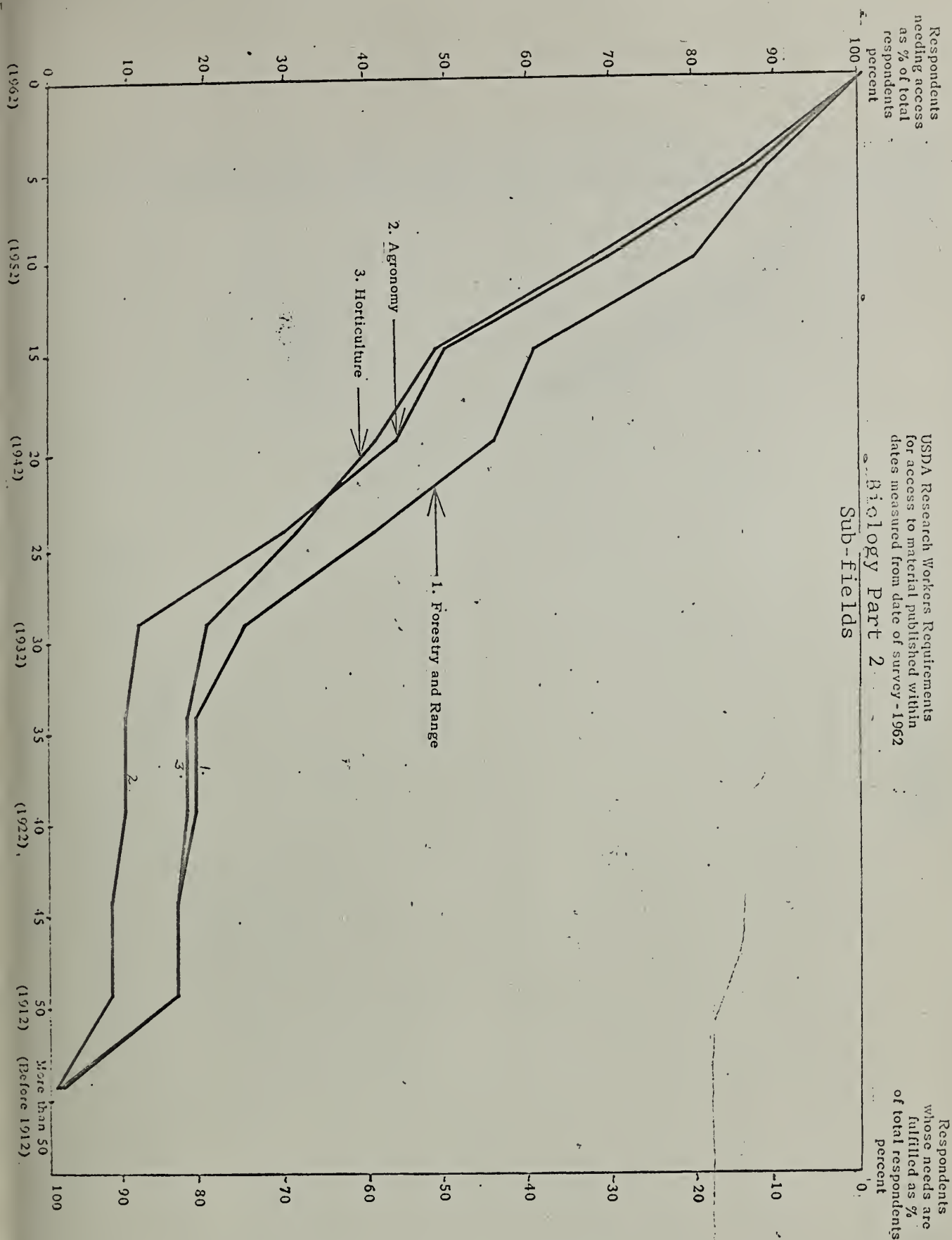
Fig. R 31



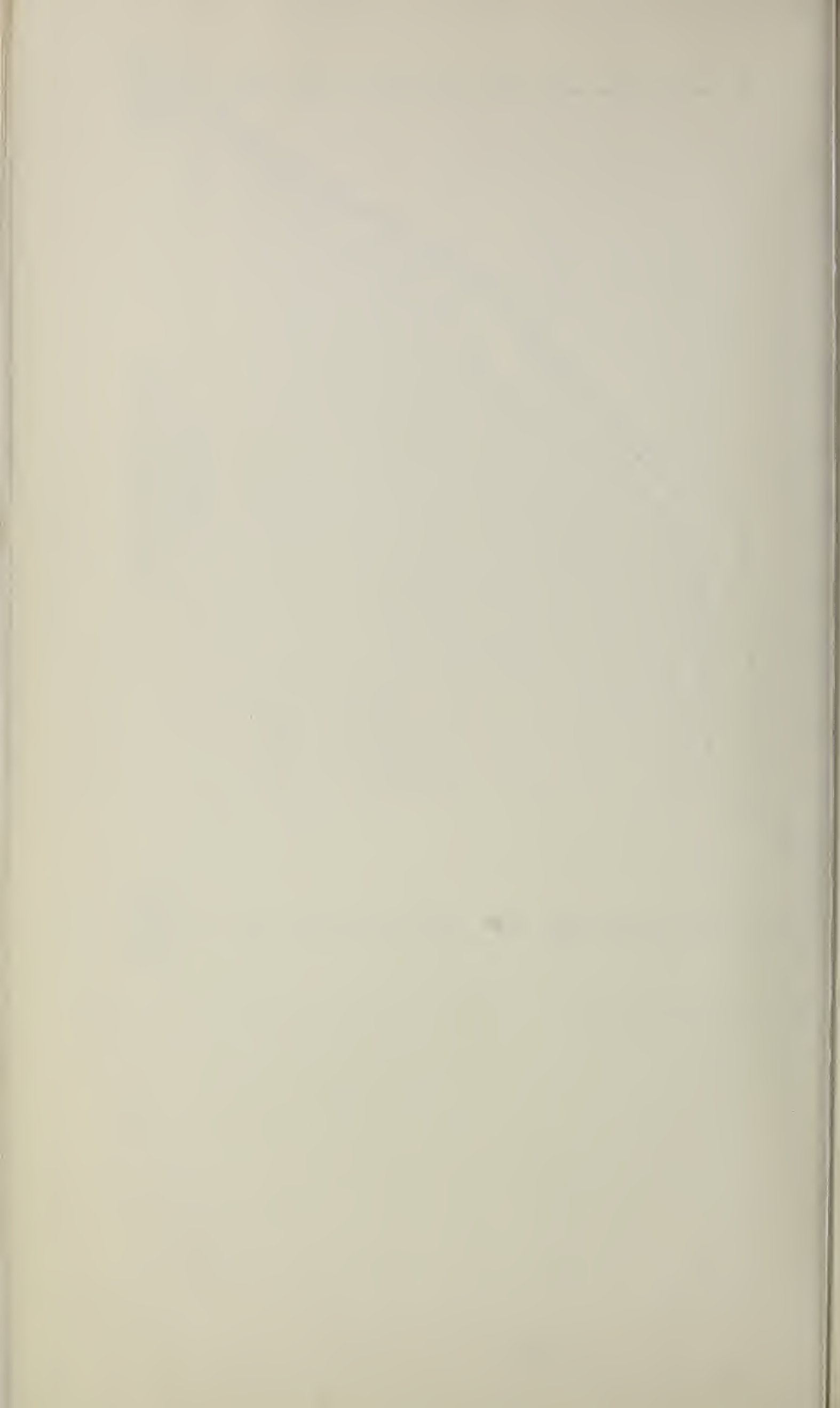


# AGE OF MATERIAL IN FIELDS OF INTEREST

Fig. R 32







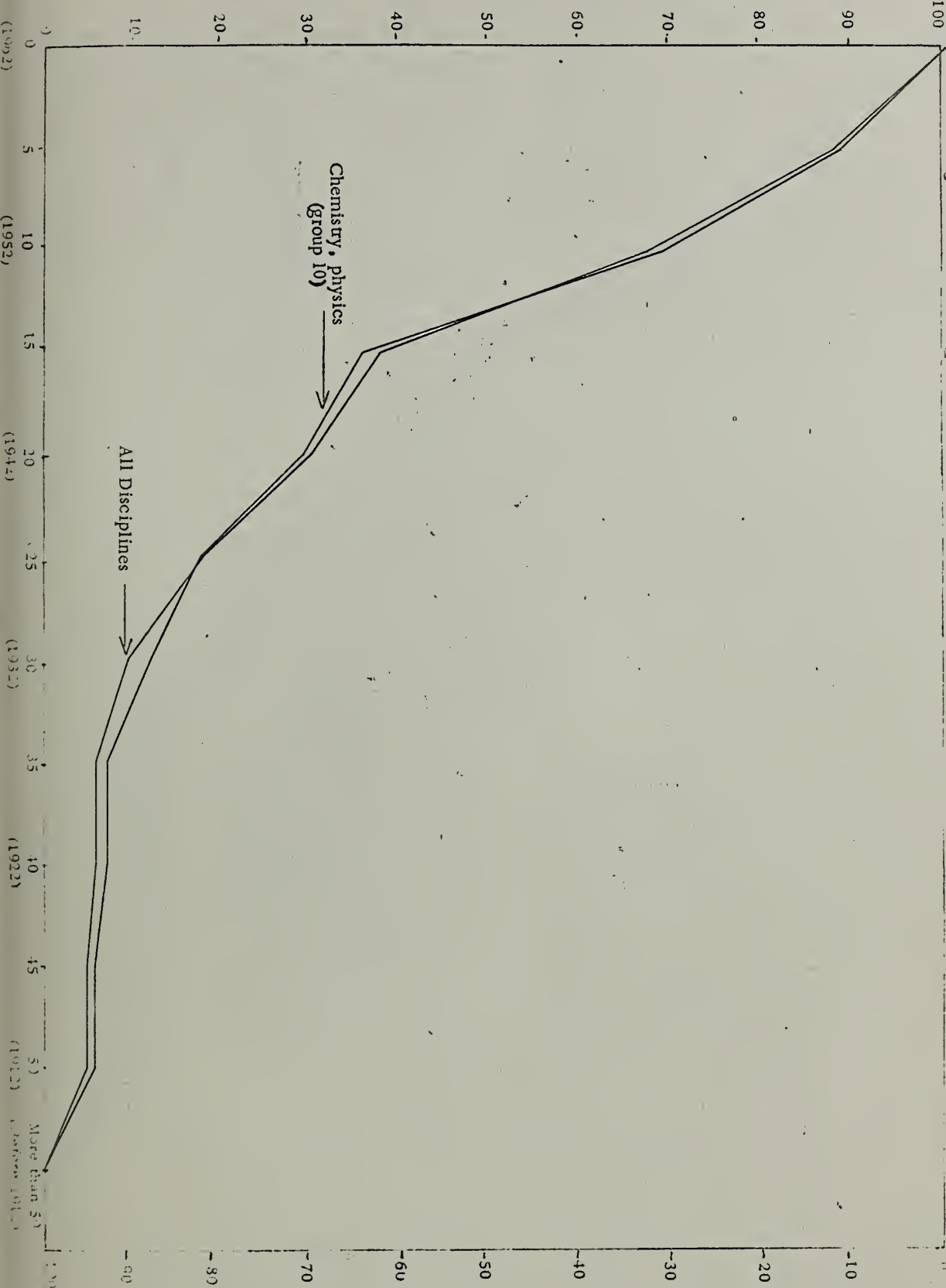
# Discipline Group Compared With All Disciplines

Fig. R 33

Respondents  
needing access  
as % of total  
respondents

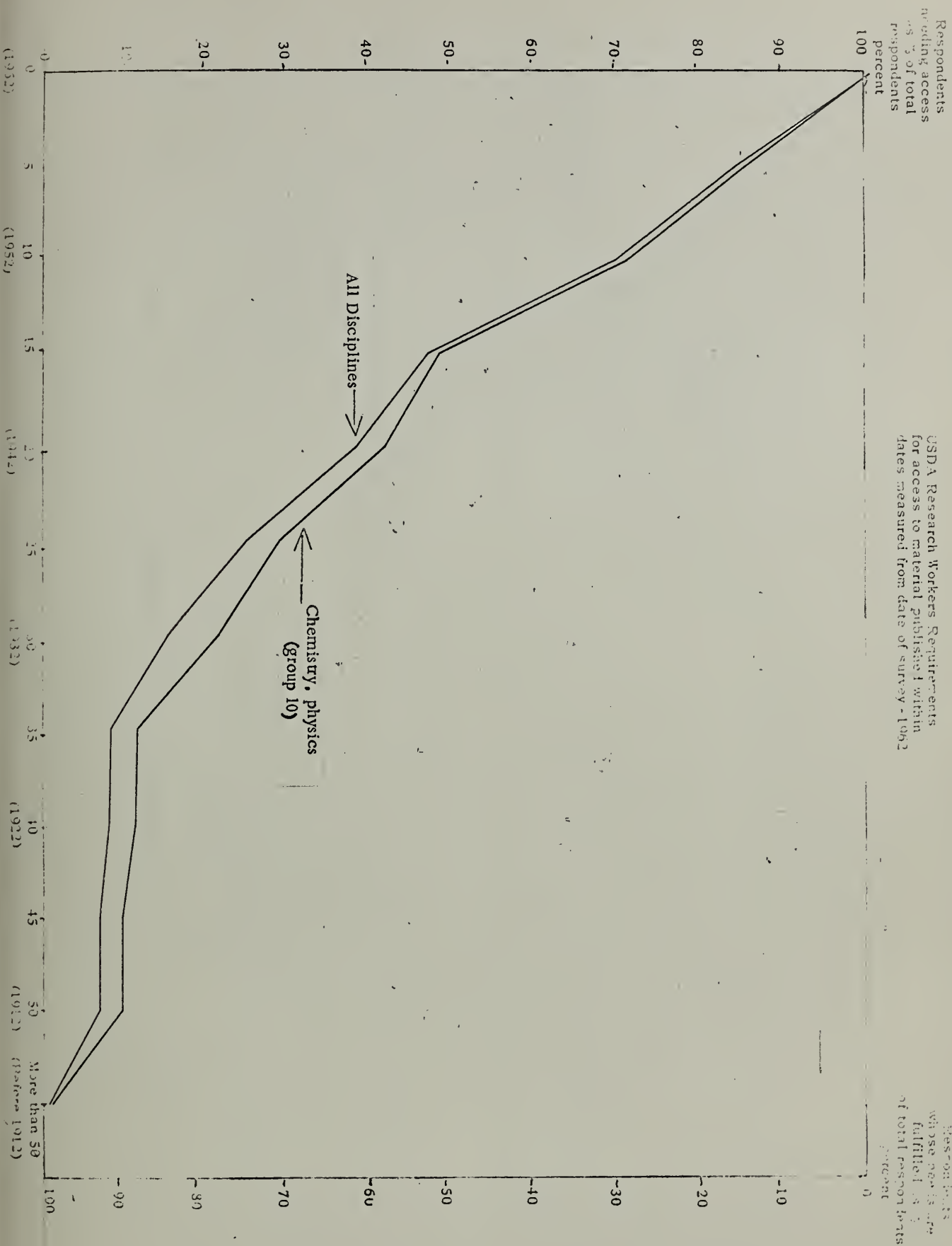
USDA Research Workers Requirements  
for access to material published within  
dates measured from date of survey - 1962

Respondents  
whose needs are  
fulfilled as  
% of total respondents





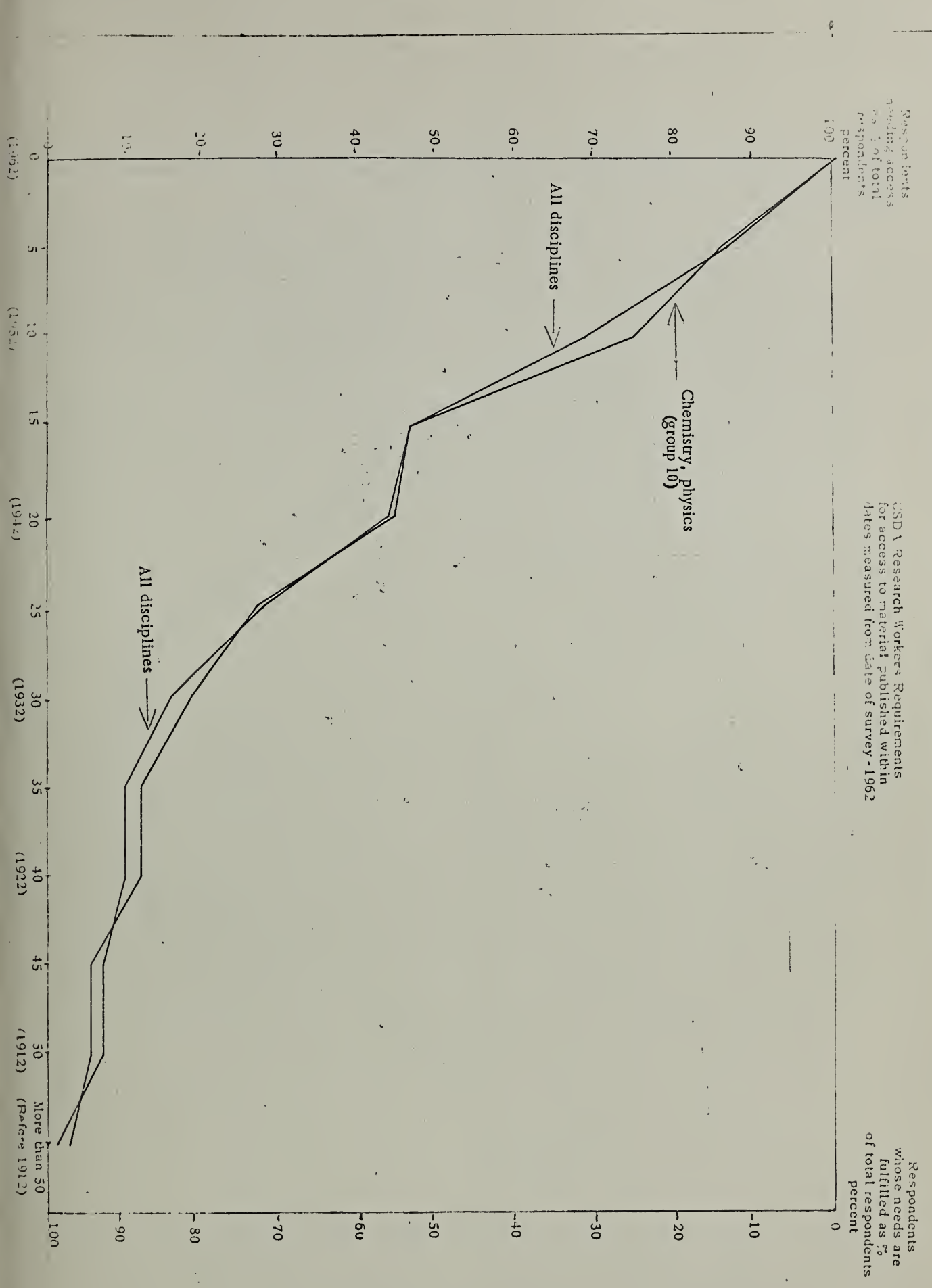
# Discipline Group Compared With All Disciplines





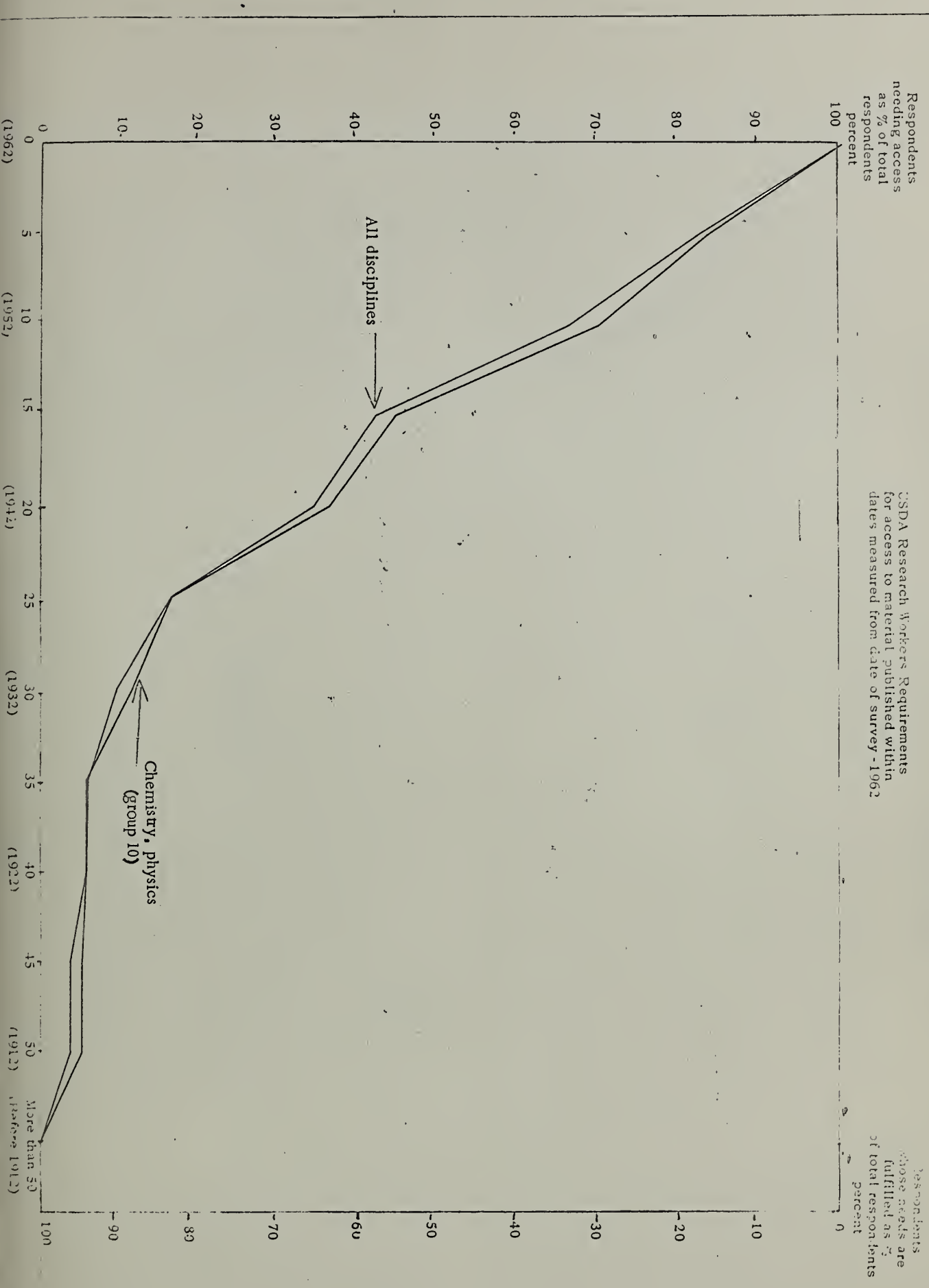


AGE OF MATERIAL IN FIELDS OF INTEREST      Interdisciplinary:      Fig. R 35  
 Discipline Group Compared With All Disciplines      Agriculture & Food Chemistry



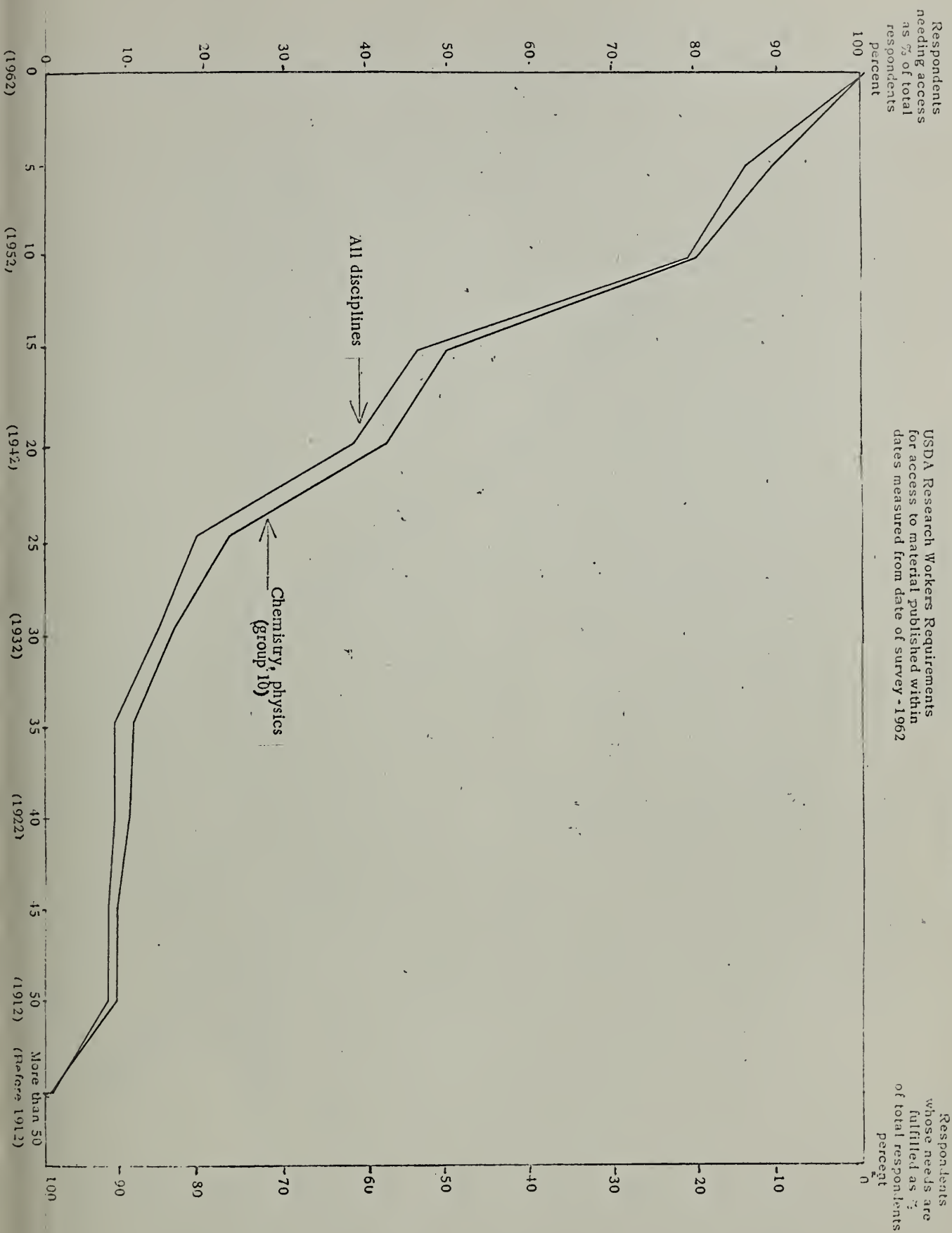


Discipline Group Compared With All Disciplines





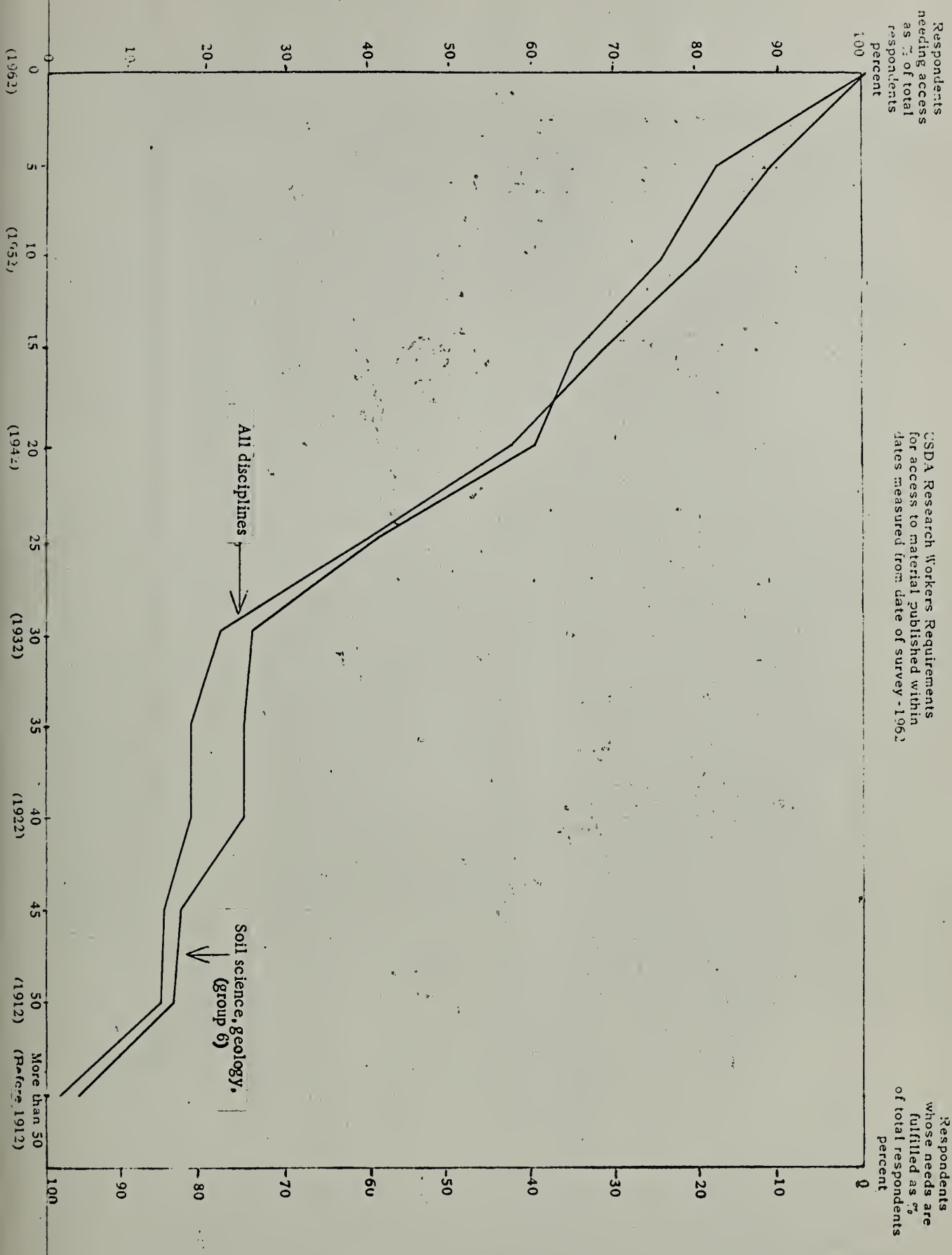
# Discipline Group Compared With All Disciplines





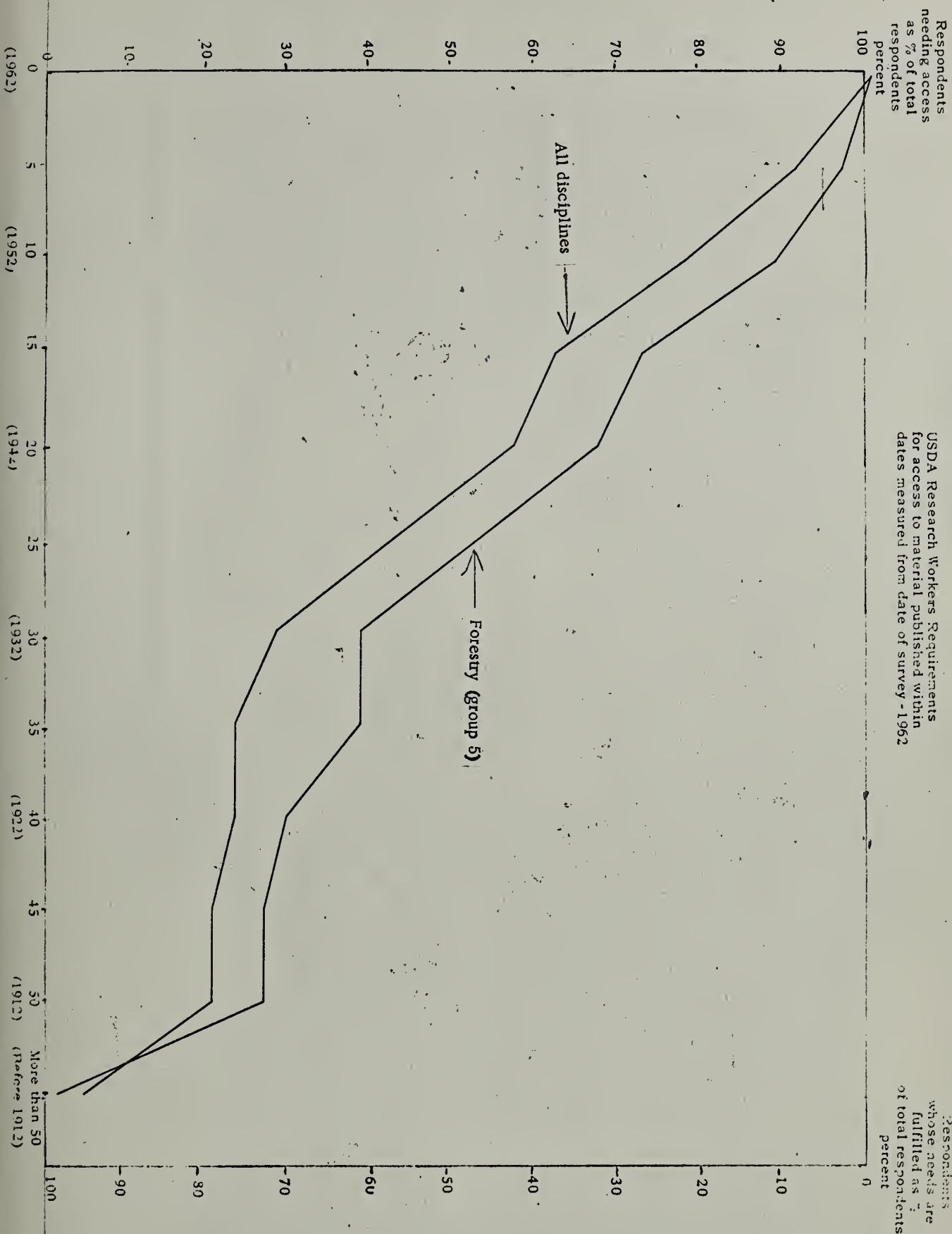


# Discipline Group Compared With All Disciplines





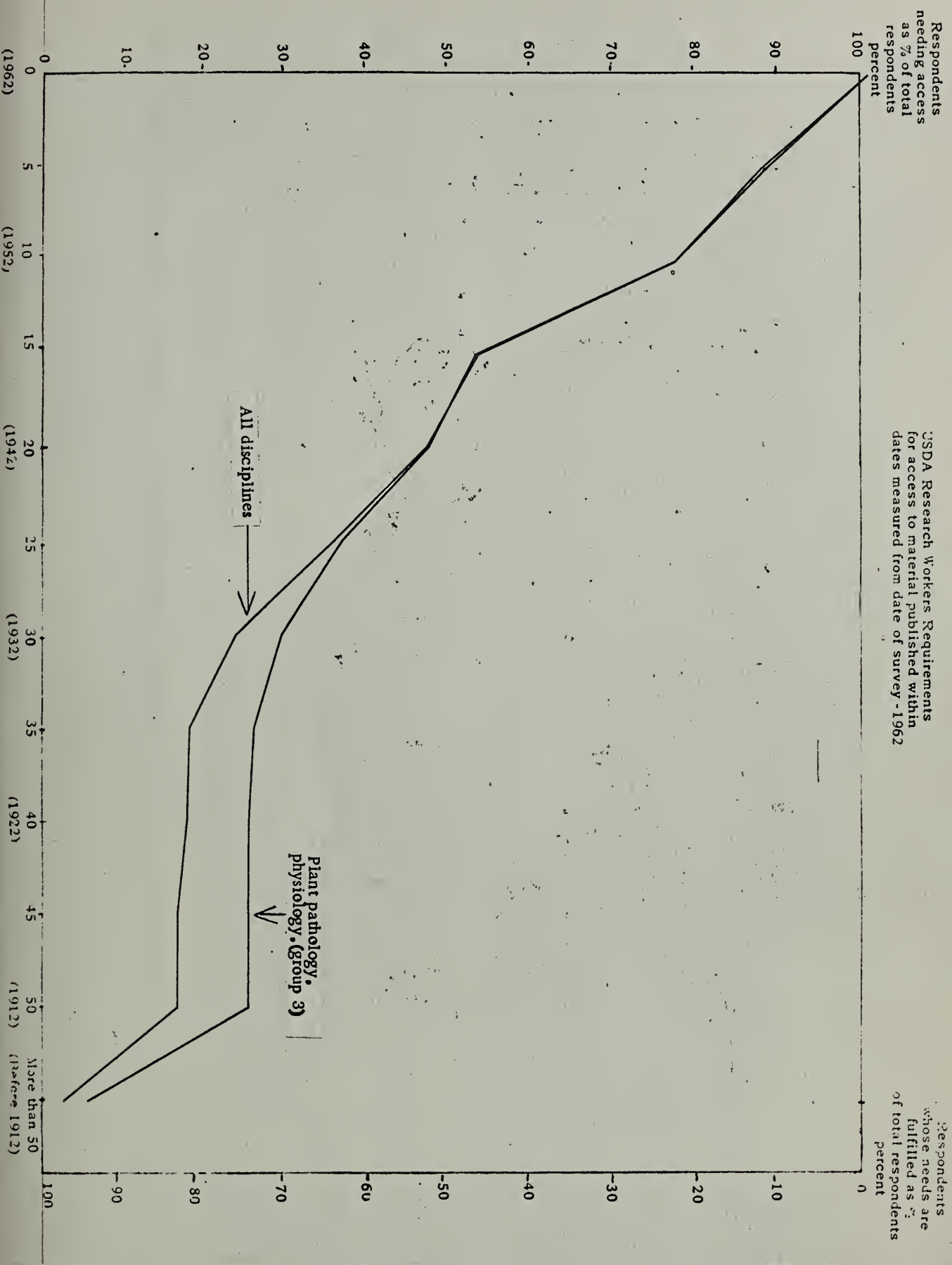
# Discipline Group Compared With All Disciplines





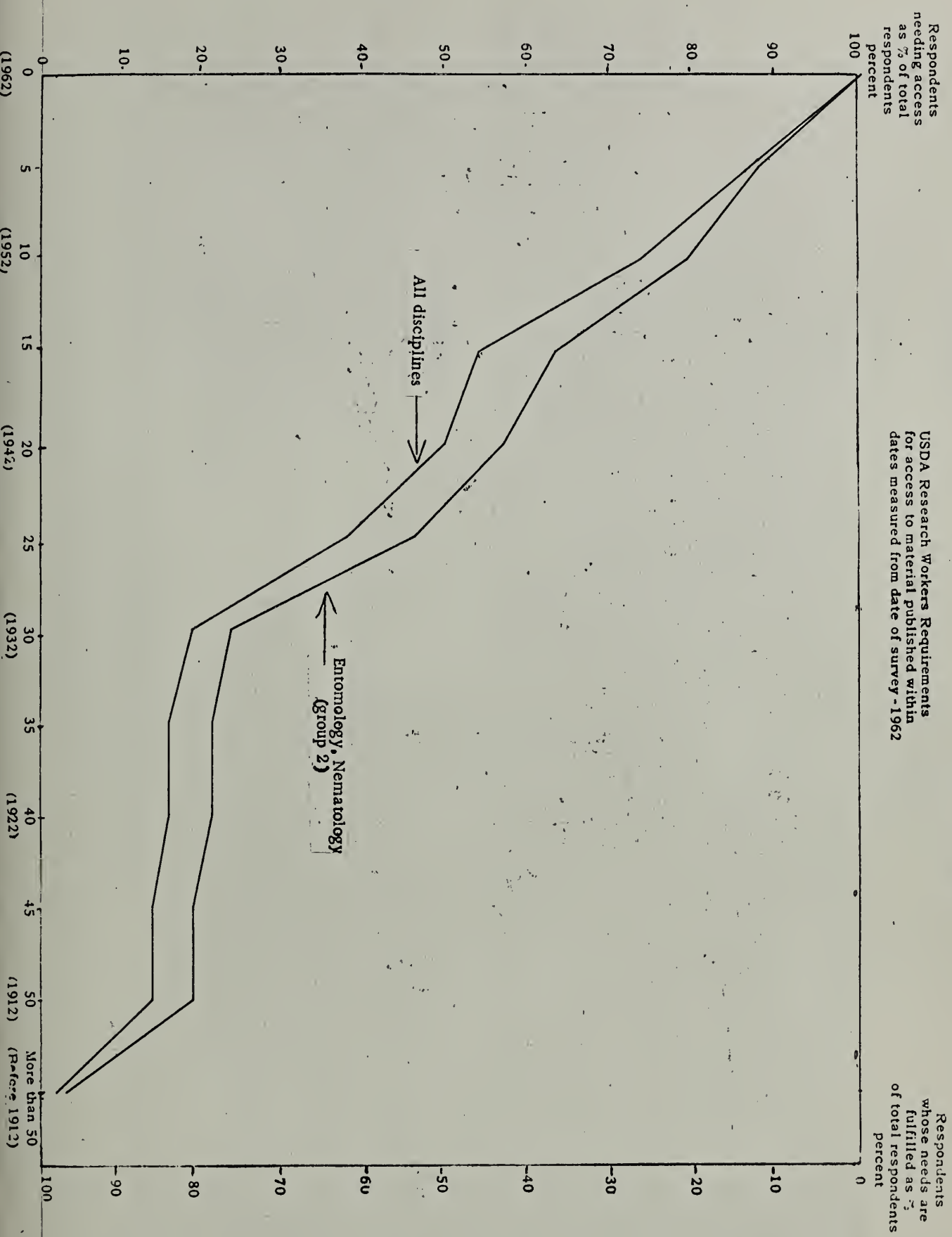


Discipline Group Compared With All Disciplines





Discipline Group Compared With All Disciplines



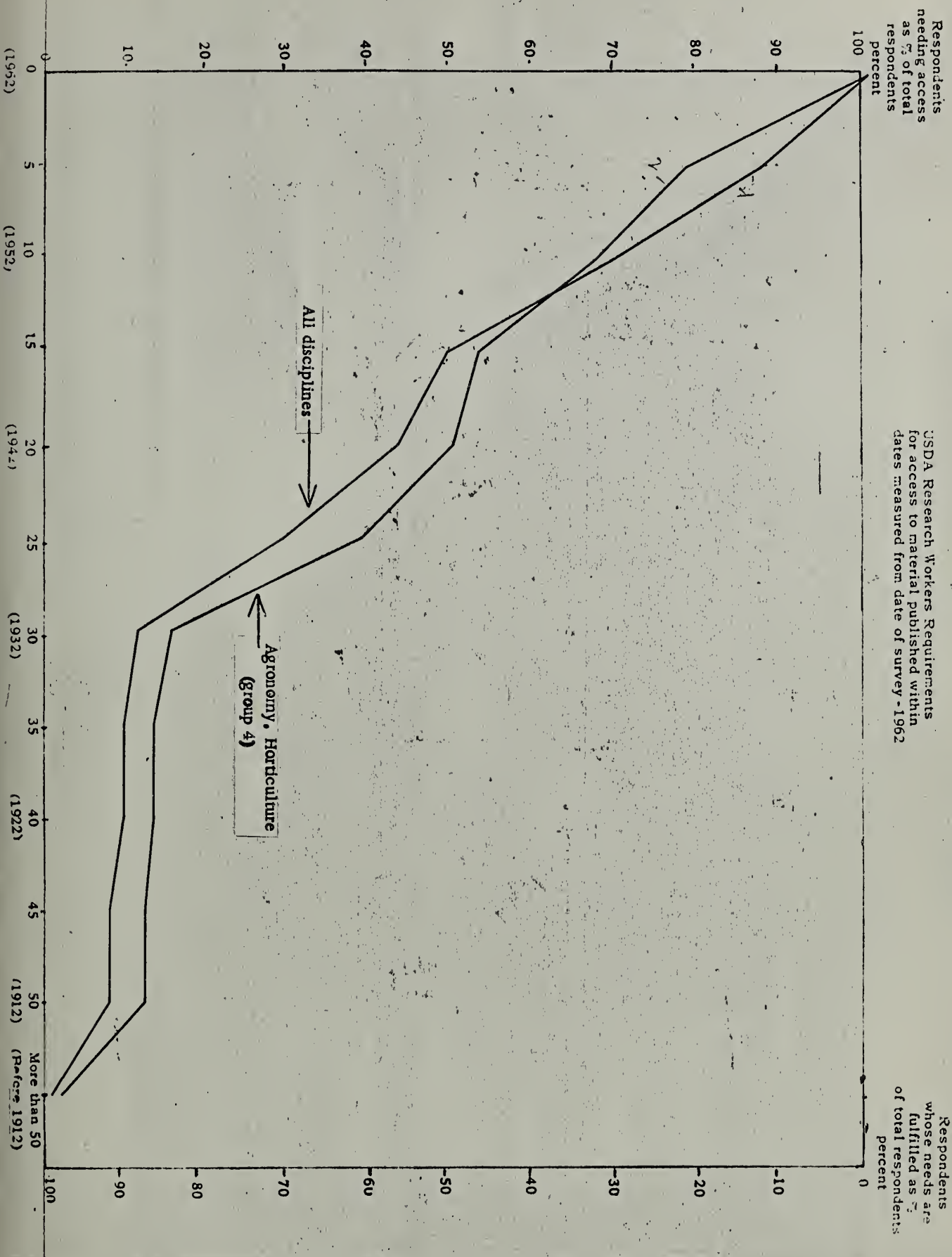






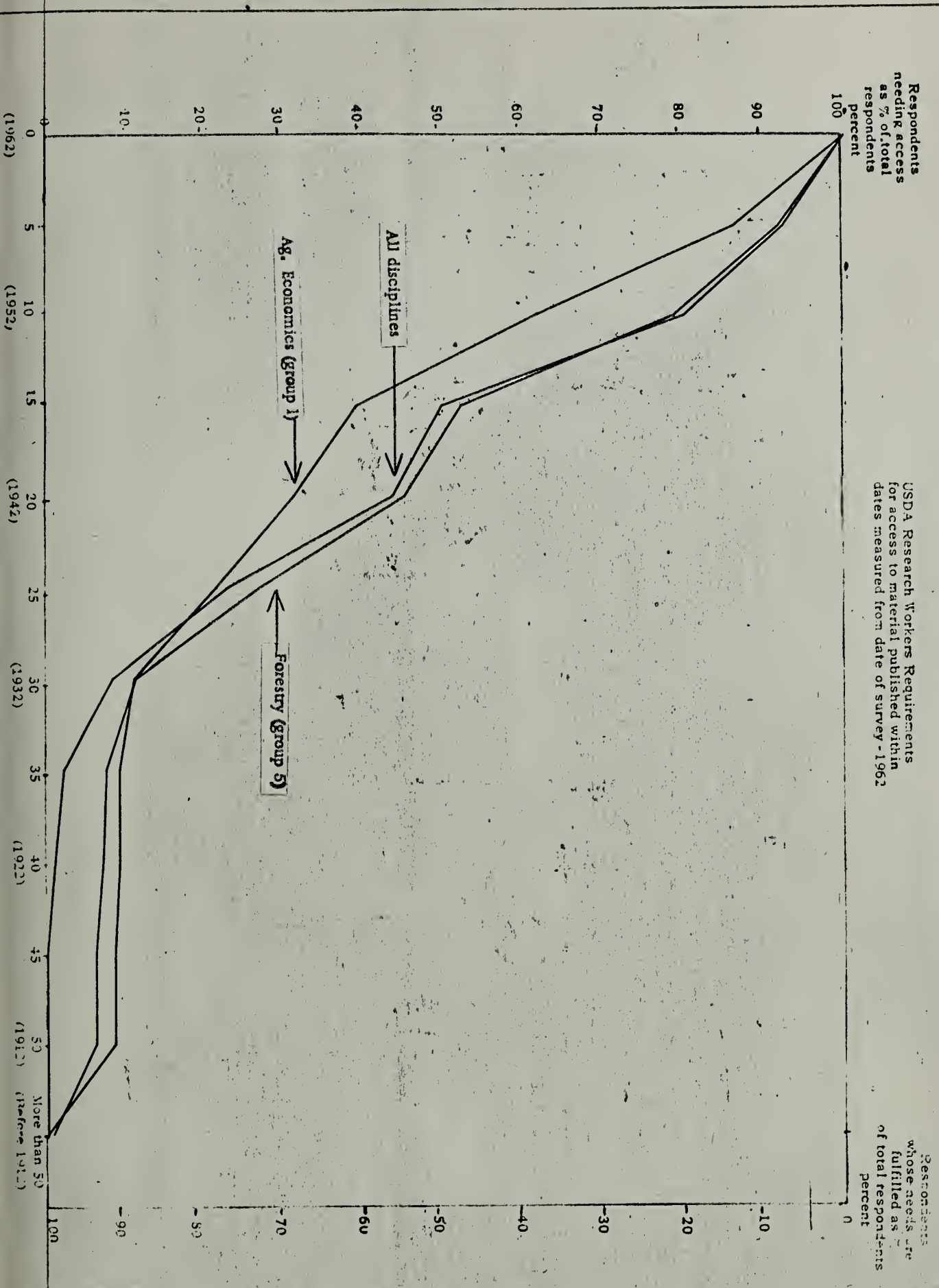


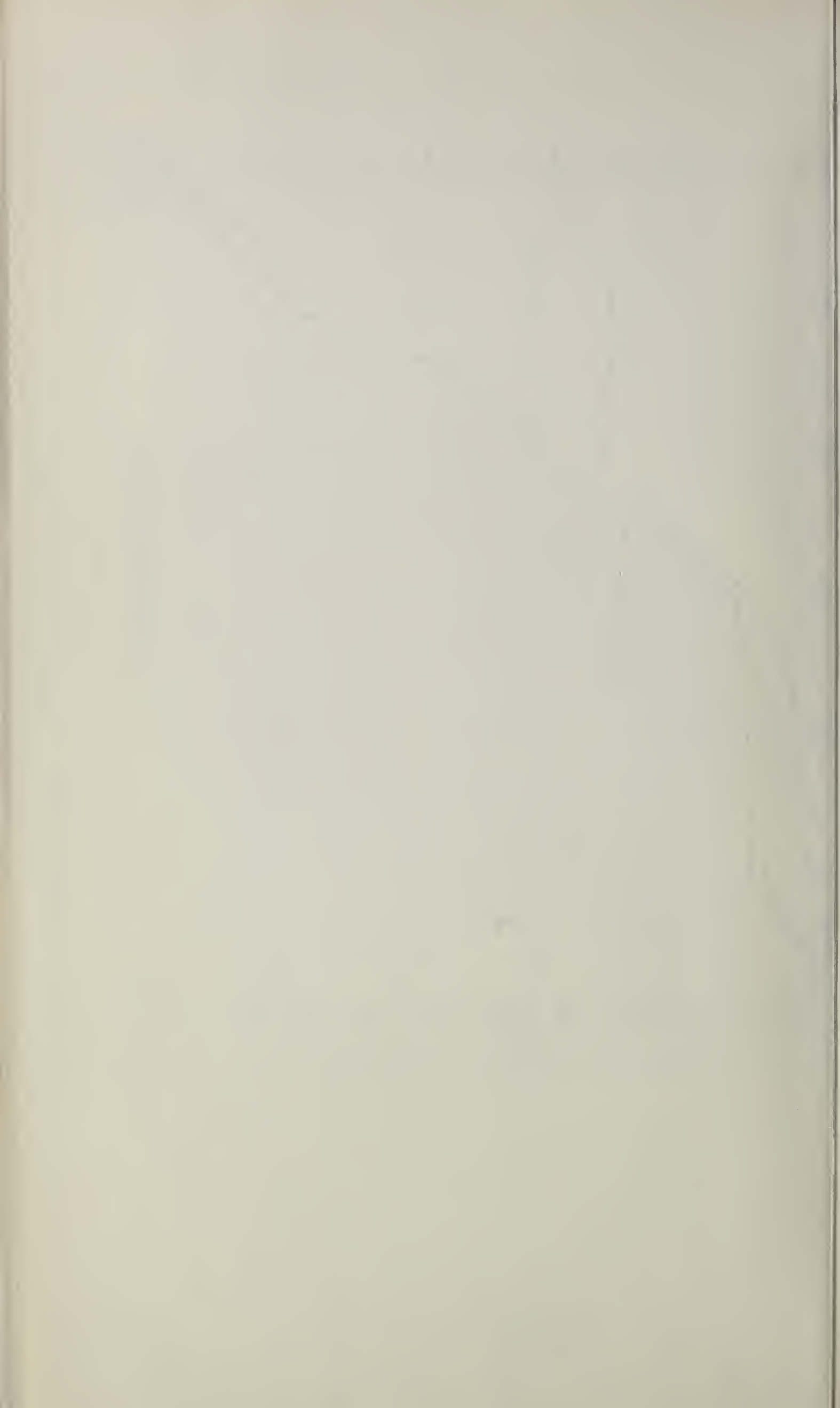
# Discipline Group Compared With All Disciplines





Discipline Group Compared With All Disciplines

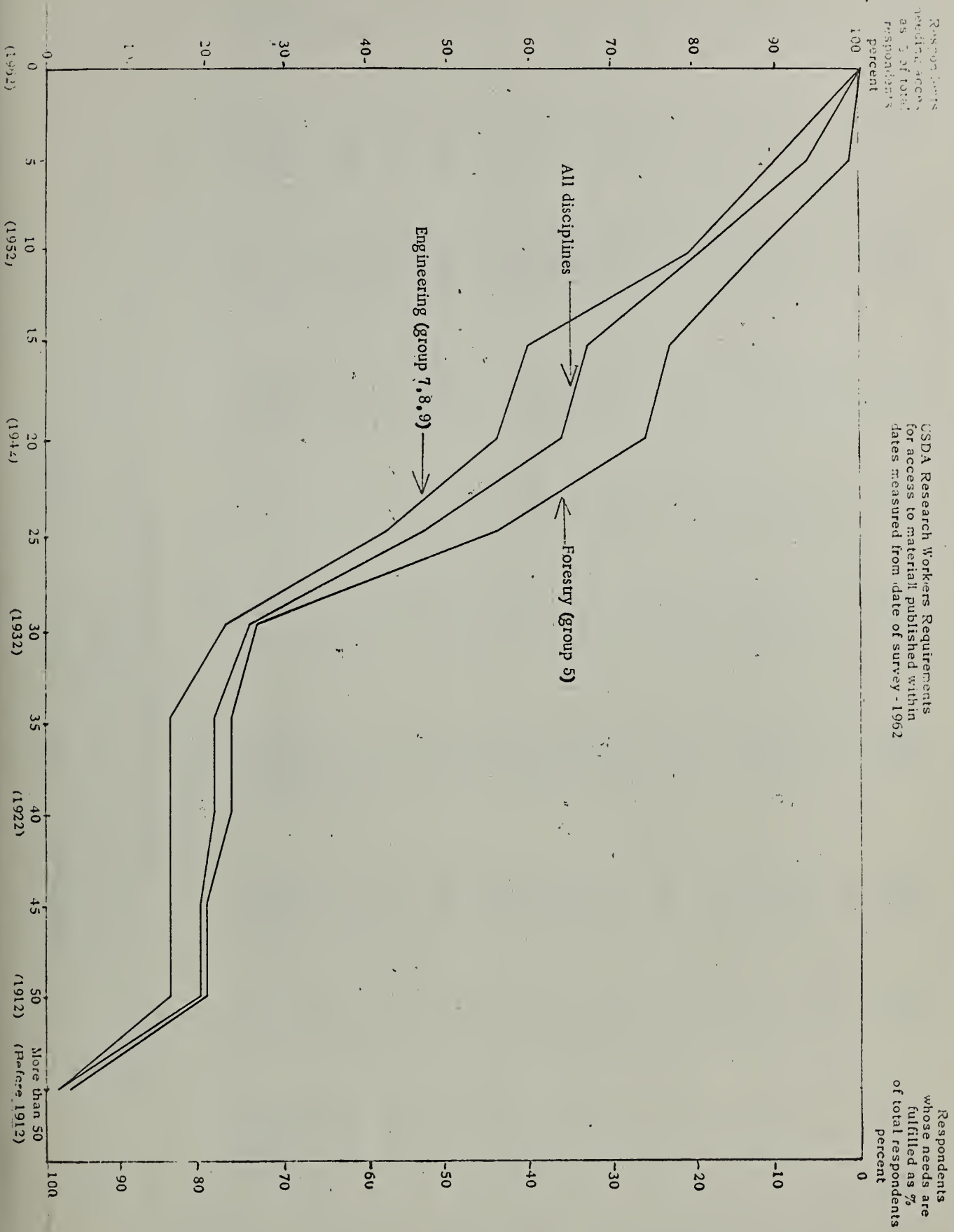






Discipline Group Compared With All Disciplines

Fig. R 45





## SPECIALTIES LIST -- FIELD OF INTEREST

Summary of Major Fields and Specified Sub-Fields 1/ -- with Rank in parenthesis  
 Respondents Wanting Access to Material Published Within Dates  
 Percent of Total Responses

(1) BIOLOGY -- PART 1 1/

Years Measured From 1962	Total Biology Part 1 1/ Pct.	(8) Botany Pct.	(9) Entomol- ogy Pct.	(13) Hytopath- ology Pct.	(16) Genetics Pct.	(21) Ecology Pct.	(23) Immun- ology Pct.	(24) Nutrition Pct.	(29) Bacter- iology Pct.	(48) Pharma- cology Pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5	88.9	90.8	86.3	87.7	87.3	94.0	84.7	91.2	90.8	76.2
10 (1952)	74.2	77.4	73.0	76.6	78.2	80.0	59.1	69.4	80.6	60.3
15	55.0	61.8	53.2	52.8	59.4	71.3	27.0	47.6	56.1	49.2
20 (1942)	50.2	56.8	49.1	46.5	55.8	69.3	21.9	44.2	49.0	39.7
25	37.8	42.4	37.2	35.3	43.7	50.0	19.0	31.3	28.6	31.7
30 (1932)	22.2	28.2	18.3	23.4	23.9	36.7	8.0	12.2	18.4	11.1
35	17.2	23.2	15.4	17.8	18.3	31.3	2.2	5.4	12.2	7.9
40 (1922)	17.1	23.2	15.4	17.5	17.8	30.7	2.2	5.4	12.2	7.9
45	15.1	20.5	13.4	16.4	16.2	28.7	1.5	2.7	11.2	6.3
50 (1912)	15.1	20.5	13.4	16.4	16.2	28.7	1.5	2.7	11.2	6.3
More than 50	2.2	5.0	1.7	2.6	1.5	2.0	-	-	2.0	-
Total Respondents	2543 1833	505 380	474 344	372 269	277 197	205 150	194 137	192 147	127 98	82 63
Averages:										
Mode - Yr.	10.0	-	10.0	10.0	25.0	50.0	10.0	-	10.0	25.0
Mean - Yr.	20.8	25.3	19.4	21.0	21.2	26.9	11.6	15.8	19.2	15.2



## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

## (2) INTERDISCIPLINARY SPECIALTIES

Years Measured from 1962	(4) Inter-disciplinary Specialties Pct.	(10) Agriculture and Food chem. Pct.	(12) Soil Specialties Pct.	(15) Physical Chemistry Pct.	(28) Electronics Pct.	(38) Bio-Physics Pct.	(40) Photogrammetry, etc Pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5	85.4	86.1	88.4	88.7	89.1	76.5	86.7
10 (1952)	70.4	68.2	79.6	79.4	67.4	55.3	73.3
15	48.0	46.0	67.6	49.0	43.5	34.1	38.7
20 (1942)	39.9	43.2	56.7	41.7	29.3	21.2	26.7
25	23.9	27.5	39.3	22.5	22.8	14.1	16.0
30 (1932)	13.7	15.7	21.1	15.7	9.8	11.8	4.0
35	9.5	9.9	17.5	10.8	6.5	9.4	1.3
40 (1922)	9.3	9.9	17.5	10.3	6.5	8.2	1.3
45	7.2	7.1	14.2	8.8	6.5	5.9	1.3
50 (1912)	7.2	7.1	13.8	8.8	6.5	5.9	1.3
More than 50	.6	1.2	1.5	.5	-	-	-
Total Respondents	2107 1505	598 416	373 275	287 204	132 92	105 85	99 75
Averages:							
Mode - Yr.	10.0	10.0	25.0	10.0	10.0	10.0	10.0
Mean	16.3	16.7	21.7	17.3	14.9	12.6	12.8





## (3) MATHEMATICS AND STATISTICS

Years Measured From 1962	(1) Mathematics and Statistics pct.	(14) Numerical Methods & Computation pct.	(17) Mathematics of Resource Use pct.	(19) Analysis & Functional Analysis pct.	(31) Probability pct.	(52) Algebra pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0
5	90.1	84.3	88.1	90.3	94.6	85.4
10 (1952)	74.6	64.0	64.4	76.6	83.7	75.6
15	46.7	31.5	42.5	47.6	43.5	51.2
20 (1942)	40.0	28.4	33.8	47.6	38.0	46.3
25	25.1	16.2	20.6	28.2	21.7	31.7
30 (1932)	12.7	6.1	11.9	25.0	8.7	24.4
35	8.6	5.1	4.4	19.4	3.3	22.0
40 (1922)	8.4	5.1	4.4	19.4	3.3	22.0
45	7.8	5.1	-	18.5	3.3	22.0
50 (1912)	7.8	5.1	-	18.5	3.3	22.0
More than 50	1.1	1.0	-	3.2	-	9.8
Total ) 3/ Respondents) 4/	2053 1377	290 197	237 160	211 124	123 92	69 41
Averages:						
Mode - Yr.	10.0	10.0	5.0	10.0	10.0	10.0
Mean - Yr.	16.9	13.3	14.2	21.4	15.3	25.3



## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

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## (4) -- CHEMISTRY

Years Measured From 1962	(2)		(3)		(26)	
	Chemistry	Organic Chemistry	Analytical Chemistry	Inorganic Chemistry	Chemistry	Chemistry
0 (1962)	pct. 100.0	pct. 100.0	pct. 100.0	pct. 100.0	pct. 100.0	pct. 100.0
5	85.9	83.6	87.5	92.6	92.6	92.6
10 (1952)	69.6	69.2	67.0	85.3	85.3	85.3
15	43.0	46.6	37.4	47.4	47.4	47.4
20 (1942)	34.7	38.0	29.8	37.9	37.9	37.9
25	22.1	24.7	17.8	26.3	26.3	26.3
30 (1932)	12.7	15.2	9.5	12.6	12.6	12.6
35	7.7	8.3	5.9	12.6	12.6	12.6
40 (1922)	7.6	8.1	5.9	12.6	12.6	12.6
45	6.5	7.0	4.9	11.6	11.6	11.6
50 (1912)	6.5	7.0	4.9	11.6	11.6	11.6
More than 50	.7	.8	-	3.2	3.2	3.2
Total	1770	972	639	159	159	159
Respondents	1209	640	473	95	95	95
Averages:						
Mode - Yr.	10.0	10.0	10.0	10.0	10.0	10.0
Mean - Yr.	15.2	15.9	13.8	18.0	18.0	18.0





## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

5

## (5) BIOLOGY --Part 2

Years Measured From 1962	<u>5/</u>		(6)		(33)	
	Biology Part 2 pct.	Forestry And Range pct.	Agonomy pct.	Horticulture pct.		
0 (1962)	100.0	100.0	100.0	100.0		
5	88.3	88.4	86.9	85.4		
10 (1952)	74.2	79.4	68.8	67.1		
15	53.6	59.7	48.7	47.6		
20 (1942)	48.4	54.7	42.7	40.2		
25	34.3	40.0	28.9	30.5		
30 (1932)	19.0	24.2	11.1	19.5		
35	14.9	18.2	9.5	17.1		
40 (1922)	14.9	18.2	9.5	17.1		
45	12.5	15.9	7.8	15.9		
50 (1912)	12.5	15.9	7.8	15.9		
More than 50	1.4	1.7	.8	1.2		
Total	1475	537	527	119		
Respondents	1085	422	398	82		
Averages:						
Mode - Yr.	10.0	10.0	10.0	10.0		
Mean - Yr.	19.3	21.2	16.5	20.0		



## (6) GEOCHEMISTRY THRU OCEANOGRAPHY

Years Measured From 1962	<u>6/</u>		<u>(7)</u>		<u>(22)</u>	
	Geochemistry thru Oceanography	pct.	Hydrology	pct.	Geology	pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0
5	93.9	93.9	93.3	93.3	98.0	98.0
10 (1952)	82.3	82.3	80.1	80.1	94.1	94.1
15	64.3	64.3	66.4	66.4	71.7	71.7
20 (1942)	62.0	62.0	63.2	63.2	71.1	71.1
25	49.3	49.3	46.3	46.3	64.5	64.5
30 (1932)	27.0	27.0	24.9	24.9	38.8	38.8
35	23.2	23.2	20.6	20.6	34.2	34.2
40 (1922)	23.2	23.2	20.6	20.6	34.2	34.2
45	21.9	21.9	18.9	18.9	33.6	33.6
50 (1912)	21.9	21.9	18.9	18.9	33.6	33.6
More than 50	2.7	2.7	1.5	1.5	3.9	3.9
Total	920	920	506	506	199	199
Respondents) <u>3/</u> <u>4/</u>	708	708	402	402	152	152
Averages:						
Mode - Yr.	25.0	25.0	25.0	25.0	50.0	50.0
Mean - Yr.	24.9	24.9	23.2	23.2	29.7	29.7

1. 10-22-41 10-22-41 10-22-41

2. 10-22-41 10-22-41 10-22-41

3. 10-22-41 10-22-41 10-22-41

4. 10-22-41 10-22-41 10-22-41

## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

7

## (7) ENGINEERING

Years Measured From 1962	(18)	(25)	(34)	(36)	(42)
	Engineering	Chemical	Sanitary	Mechanical	Civil
	pct. 100.0	Engineering	Engineering	Engineering	Engineering
	pct. 100.0	pct. 100.0	pct. 100.0	pct. 100.0	pct. 100.0
0 (1962)					
5	91.1	96.0	94.4	92.3	89.7
10 (1952)	80.3	89.1	83.3	76.9	85.9
15	52.0	48.5	41.1	55.1	68.0
20 (1942)	45.6	37.6	37.8	50.0	60.3
25	27.8	22.8	18.9	26.9	41.0
30 (1932)	16.1	10.9	6.7	19.2	32.1
35	11.5	9.9	4.4	12.8	21.8
40 (1922)	11.3	8.9	4.4	12.8	21.8
45	10.8	8.9	4.4	12.8	19.2
50 (1912)	10.8	8.9	4.4	12.8	19.2
More than 50	.3	-	-	-	-
Total	1001	179	90	112	97
Respondents)	684	101	118	78	78
Averages:					
Mode - Yr.	10.0	10.0	10.0	20.0	-
Mean - Yr.	18.1	17.1	15.1	18.8	23.2





## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

## (8) -- PHYSICS

Years Measured From 1962	(27) Optics Pct.	(46) Thermal Phenomena Pct.	(49) Solid State Pct.	(50) Physics of Fluids Pct.	(51) Mechanics Pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0
5	94.2	100.0	97.8	94.4	95.7
10 (1952)	83.2	89.2	91.3	88.9	89.4
15	53.3	40.5	65.2	72.2	63.8
20 (1942)	47.7	32.4	52.2	72.2	59.6
25	29.0	18.9	28.3	50.0	40.4
30 (1932)	15.4	16.2	13.0	24.1	23.4
35	10.0	2.7	6.5	13.0	14.9
40 (1922)	10.0	2.7	6.5	13.0	14.9
45	7.9	2.7	2.2	13.0	10.6
50 (1912)	7.9	2.7	2.2	13.0	10.6
More than 50	-	-	-	-	-
Total	604	51	74	72	69
Respondents	428	37	46	54	47
Averages:					
Mode - Yr.	10.0	10.0	10.0	25.0	10.0
Mean - Yr.	18.1	15.4	18.3	22.7	21.2



## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

9

## (9) -- ATMOSPHERIC

Years Measured From 1962	7/ Atmospheric, etc. Pct.	(20) Climatology Pct.	(39) Area Specialization Pct.	(41) Atmospheric Dynamics Pct.
0 (1962)	100.0	100.0	100.0	100.0
5	93.2	94.8	94.0	94.7
10 (1952)	76.5	81.3	75.9	78.9
15	49.8	53.5	45.8	52.6
20 (1942)	44.7	49.7	39.8	50.0
25	29.9	34.2	28.9	31.6
30 (1932)	15.5	17.4	14.5	17.1
35	12.1	12.9	14.5	10.5
40 (1922)	12.1	12.9	14.5	10.5
45	10.9	12.3	14.5	7.9
50 (1912)	10.9	12.3	14.5	7.9
More than 50	1.0	1.3	-	-
Total ) 3/ Respondents) 4/	540 412	207 155	105 83	99 76
Averages:				
Mode - Yr.	10.0	10.0	10.0	10.0
Mean - Yr.	18.3	19.7	18.0	18.4





## SPECIALTIES LIST -- FIELD OF INTEREST, cont.

10

## (10) SOCIAL SCIENCE, (11) PSYCHOLOGY

Years Measured From 1962	Social Science, Humanities and other Specialties 8/		(10) Economics 8/		(35) Industrial and Personnel Psychology	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
0 (1962)	100.0	100.0	100.0	100.0	100.0	100.0
5	86.0	86.0	90.1	70.9	73.1	73.1
10 (1952)	64.6	64.6	73.2	40.5	39.7	39.7
15	44.6	44.6	52.1	13.9	16.7	16.7
20 (1942)	38.0	38.0	42.3	11.4	12.8	12.8
25	29.2	29.2	31.0	5.1	5.1	5.1
30 (1932)	21.0	21.0	23.9	3.2	1.3	1.3
35	17.7	17.7	19.7	1.9	-	-
40 (1922)	17.3	17.3	18.3	1.9	-	-
45	17.0	17.0	18.3	1.9	-	-
50 (1912)	17.0	17.0	18.3	1.9	-	-
More than 50	4.8	4.8	4.2	-	-	-
Total Respondents ) 3/	423	423	103	214	115	115

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SPECIALTIES LIST -- FIELD OF INTEREST, cont.

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- 1/ Sub-fields shown for groups with 50 or more responses and ranked from 1-52 based on total number of responses including responses for which years were not shown.
- 2/ Includes sub-fields Anatomy, Bacteriology, Botany, Ecology, Entomology, Genetics, Immunology, Nutrition, Pathology, Pharmacology, Physiology, Pythopathology.
- 3/ Total number of responses, including responses for which years were not reported. This number was used as a basis for determining rank.
- 4/ Number of responses for which age of material in years was shown.
- 5/ Virology, Zoology, Agronomy, Animal Husbandry, Fish and Wildlife, Forestry and Range, Horticulture.
- 6/ Geochemistry, Geodesy, Geology, Paleontology, and Paleobotany, Solid-Earth Geophysics, Geography, Hydrology, Oceanography.
- 7/ Atmospheric Dynamics, Chemistry and Physics, Climatology, Synoptic Meteorology, Area Specializations, Meteorological Instrumentation.
- 8/ There was no sub-field (intermediate) for this group. Economics ranked 13 among the specialties (minor)group, and is shown above in place of the sub-field.

1. The first part of the paper is devoted to a general  
discussion of the problem of the existence of  
a solution of the system of equations  
$$\frac{dx}{dt} = f(x, y, z), \quad \frac{dy}{dt} = g(x, y, z), \quad \frac{dz}{dt} = h(x, y, z)$$
  
where  $f, g, h$  are continuous functions of  $x, y, z$  and  
satisfy certain conditions. It is shown that under  
these conditions there exists a unique solution of the  
system of equations which passes through a given  
point  $(x_0, y_0, z_0)$  at a given time  $t_0$ .

2. In the second part of the paper the author  
considers the problem of the stability of the  
solution of the system of equations. It is shown  
that if the functions  $f, g, h$  satisfy certain  
conditions, then the solution of the system of  
equations is stable with respect to the initial  
conditions.

3. In the third part of the paper the author  
considers the problem of the asymptotic stability  
of the solution of the system of equations. It is  
shown that if the functions  $f, g, h$  satisfy certain  
conditions, then the solution of the system of  
equations is asymptotically stable with respect to  
the initial conditions.

SUMMARY OF COMMENTS FROM INQUIRY ON REQUIREMENTS OF USDA  
RESEARCH WORKERS FOR ACCESS TO  
SCIENTIFIC AND TECHNICAL PUBLICATIONS

September 1962

The following is a tabulation of comments classified on the basis of the judgment of the staff.

1. Present Services	Access to		Service by NAL D.C. & Belts.	Total	
	Service <u>Field</u>				
Comments:					
(1) Commending	19		12	31	
(2) Adverse criticism	38		24	62	
(3) Problems cited	10		9	19	
(4) General comments	11		4	15	
	<u>78</u>		<u>49</u>		127
2. New Services Suggested:					
(1) A description of NAL Services				24	
(2) Abstracting Service				11	
(3) Special bibliographies, lists of recent acquisitions, copies of table of contents				15	50
3. Reinstate Routing Periodicals:					
	<u>Field</u>		<u>D.C. &amp; Belts.</u>		
Yes	17		14	31	
No	-		1	1	32
4. Photography or Reprints Service					18
5. Translation Services and Foreign Journal Collection:					
(1) Commending service	2				
(2) Problems cited	13				15
6. Comments on other than NAL indexes or abstracts					15
7. NAL collection needs					10
8. Improve techniques or procedures					10
9. Criticism of individual researcher or his agency's policy					9
10. Personal contacts as a source of information					8
11. NAL Inter-Library loan service					4
12. General comments					35

The above summarizes comments made at the end of the questionnaire in response to:

"Your comments are invited on any phase of the problems in current awareness, retrospective searching, obtaining books, periodicals, etc., as related to library services."

A listing of the comments grouped as in the summary follows.



*[Faint, illegible text, likely bleed-through from the reverse side of the page]*

1. PRESENT SERVICES

Field - Access to Service:

225 I have had no trouble in getting any published material. If the library here does not have it they will get it or get a microfilm copy of any article.

819 I have never yet failed to get from the library any domestic or foreign periodical or book, old or recent! The Bibliography of Agriculture gives a good worldwide coverage!

372 The library facilities and attitude toward their use has assisted our research many times. The librarian and the local library committee are to be commended for doing an excellent job.

834 We have a favorable situation for library research because we are a research unit of the Forest Service. Our usual procedure by the various steps is: (1) personal files; (2) Field library; (3) station headquarters library; (4) University Library; and (5) USDA library.

409 The greatest problem in current awareness is to find time to use library facilities adequately and handle all the details of the job. Excellent library facilities are available in my own building.

374 The library at Western Regional Res. Lab. is especially good since we have a loan arrangement with the U. of California. This USDA library has very little in the field of allergy and medicine in particular.

912 Our library at Forest Products Lab. has been most helpful and has access to references at the University of Wisconsin Library, which in some instances has expedited my work. I appreciate their services and commend them.

874 I wish to stress the importance of local library facilities and services - in my work at least. Our local library has proved extremely valuable in providing ready access to a variety of statistical and mathematical texts, and in locating hard-to-find references.

215 I have access to the library at Iowa State University. I feel it would be difficult to carry out my research and prepare manuscripts without such a library.



171 Our library service here is excellent and we get any new books we need, or any old ones. Beg-Borrow-or Steal! Our periodicals are ample, too.

168 Our library facilities here at SRRL - of SURDD are very good and comprehensive. Also working and lending arrangements exist with several other technical reference libraries in the immediate locality.

158 In order to intelligently do research work of any type, a sufficient source of the literature is necessary. I am pleased to report that we have here at SURDD, a library which greatly surpasses that requirement.

157 I have found our library service to be of excellent quality. Our librarian is very capable in obtaining any information from other sources when its not available locally.

123 At this location (Davis, Calif.) we have excellent library facilities and easy access to them. Including use of Berkeley, Calif. campus library.

052 We have fine library facilities at Peoria. We can also use volumes from Bradley University and other universities in neighboring states.

604 I am very fortunate here at Oklahoma State University for the college has an excellent library. This has been very important.

539 We subscribe to the periodic literature most needed by us, and we are fortunate to be able to use the University of Wisconsin Library system. We therefore seldom use the USDA National Agricultural Library.

281 Our library does an excellent job of making everything available that may help the scientific staff in any way. It is difficult to see how more could be done to improve the situation at least in my fields of interest.

505 Our Tobacco Literature Services on this campus is invaluable.

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408 Funds of USDA libraries are limited to such an extent that their service to USDA field stations is only a token gesture. I feel that this is indeed an unnecessary handicap. All field station investigators should have ready access to scientific and technical publications.

558 The library services available at this laboratory in connection with those available on the Iowa State University campus seem to be fairly adequate for our needs. My only major complaint and that from members of my staff are concerned with the delays in getting key references or photocopies thereof for those references not available here or on the Iowa State University campus.

213 We have practically no library services in the field station.

524 Keeping up with library facilities and operations is a bit of a problem when one works 300 miles from an adequate library - as Texas A & M. The photoprint service of USDA library is the most helpful to us.

480 Agricultural Research Service personnel stationed at field stations not located at a University have very little opportunity to read current literature except those periodicals they personally purchase. No routing of current periodicals is done in USDA.

490 Library services are not easily available to such field stations as ours (Florence, S. C.) Improvements in this area would seem to be desirable.

511 Since I am located at a field station, I have not had access to library services and do not have available library acquisition lists.

516 Very poor library facilities in field stations, except USDA Library photostat service.

613 The college library (Montana State College) is not very good for economic research -- just does not have good research data.

610 Library service could be much improved here.

THE UNIVERSITY OF CHICAGO  
DIVISION OF THE PHYSICAL SCIENCES  
DEPARTMENT OF CHEMISTRY  
CHICAGO, ILLINOIS 60637

TO THE EDITOR:  
I am pleased to inform you that the manuscript of the paper  
entitled "The Structure of the Liquid Phase of  
the System  $\text{H}_2\text{O}-\text{D}_2\text{O}$ " has been accepted for publication  
in the *Journal of Chemical Physics*. The paper will appear  
in the issue of the *Journal* dated May 1, 1964.

Very truly yours,  
J. D. Bernal

Enclosed for you are two copies of the paper. One copy  
is for your personal use and the other is for the  
Library of the University of Chicago. The paper is  
also being deposited in the Library of the National  
Bureau of Standards.

I am sure that you will find the paper of interest  
and that it will be of value to you. I am sure  
that you will find the paper of interest and that  
it will be of value to you. I am sure that you  
will find the paper of interest and that it will  
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857 Although improving, we have not had an agency library that was worthy of the name.

355 In the field we need better service in obtaining books, periodicals, etc., from the library. Current periodicals and journals should be routed to us. We have no such service now.

391 Many of the sources listed are not available to me at my present station. This makes preparation of manuscripts long and tedious.

909 Don't have time to do any browsing in the library unless it is for a specific purpose. There is not an opportunity to attend many meetings relating to my research and there is no library source to obtaining information on the paper presented.

803 My chief problem is not having a good library readily available to browse through references of immediate interest. i.e. I must send off for periodicals I need or think I need. The process is time consuming and often need has passed by the time I receive material - or I must return material to library before I get to it again.

828 Library facilities are extremely limited at our institution, and this deficiency is reflected in my answers to this questionnaire. Ideally, other sources of information would be used to greater advantage if available. However, because of the lack of immediate facilities, we rely heavily on the USDA Library loan service and we are indeed appreciative of the services rendered.

564 The nearest adequate library facilities to this field station are located at the University of Florida at Gainesville, 120 miles away. Therefore, to perform an adequate literature review and to keep abreast of current literature is extremely difficult.

025 Field research stations are seriously handicapped by lack of ready access to library reference and loan services, and would profit from periodical circulation service.





014 The location of ARS field stations in places where the best library materials are not available is a great hinderance.

208 Overseas workers find the local libraries usually do not have sufficient literature pertaining to work done in the U.S. Many of the above sources are not available to overseas personnel at the present time.

135 These comments emphasize the lack of a large library in a field station several hours drive from a university library. Many potentially useful sources of information were simply not accessible.

117 At a small field station, library facilities are limited. Travel to near-by land grant college libraries that offer reference services would seem partially adequate. Circulation of tables of contents of journals and periodicals in ones field and related fields would permit request of those issues containing items of interest.

345 Have very limited library services available in official station - must make special trip to Tucson, Ariz. For detailed library work routing and distribution of current literature good but sometimes six or more months behind.

355 The greatest handicap to the position is the lack of library facilities. The closest reference library is 250 miles. You can see the difficulty when you need a special reference or one that is a few years old.

402 Library facilities at the U. S. Range Livestock Exp. Station are woefully poor. Card indexes are not available on authors or subject matter, consequently it is necessary to travel 300 miles to nearest college library.

736 Over the years the USDA library services seem to have become progressively poorer to the extent that primary reliance must be placed on nearby university libraries. Fifteen years ago USDA (including agency) library facilities and services were excellent and I made considerable use of them. Now I use the University facilities largely and am not sure what USDA services are available, perhaps due to lack of communications.





763 Libraries, as a source of immediate information pertinent to project and research studies, are too distant for efficient use - over 250 miles.

876 The greatest problem at present is the lack of adequate library in the immediate vicinity of this field station -- Laconia, N.H. Although verifaxing and photostating by the Washington Office and our own relieve this somewhat, the fact remains that field stations are handicapped without library facilities.

570 We are in need of better library facilities and services so that we can keep abreast of the literature in our field.

557 From this station, library reference services, photocopying, translations, are too involved and too slow to be of real value.

557 Delays normally encountered when requesting inter-library loans, photocopies and translations through our local station library seem to be excessive. Resources for literature searches are presently limited at our station.

009 Field stations such as ours do not have access to library facilities without extensive travel. Routing services would be very helpful.

220 The routing and distribution of current literature is most unsatisfactory. Magazines arrive 6-8 months late. Sometime longer. My agency has very few reference services in my subject matter field. Only a few of the current ones are available. Lack of library near agency is poor management for research workers.

321 Unfortunately, many research workers are located in stations at which library facilities are meager or non-existent and the services of a good library often involves excessive travel and time. These workers are at a terrible disadvantage in attempting to keep abreast of recent work in the field.

313 The library station consists almost entirely of journals, periodicals and reference books owned by members of the staff. The actual library is non-existent. Attempts to obtain reference material from other sources have not been too successful and I have found it better to take time to visit either of the State Universities.



911 The current tendency is to dispose of much useful information merely because it is old. In general the system seems to be more important than the subject matter--at least for an occasional user.

211 Branch library service at land grant colleges and for universities was very convenient for field workers when it existed. Please reinstate.

264 We do not have library facilities available.

890 It sometimes takes up to 3 months to receive a copy of an article from the USDA library. Usually, it is more convenient to drive to a nearby University and use their facilities.

895 1. Time lag getting articles to field station from library. 2. Means of keeping copy of article for file. I would suggest sending copies of articles instead of large bound volumes as often as possible.

095 The preparation of articles requiring exhaustive literature survey is very difficult away from a library. Prompt library service, in response to mail requests for books and journals, is of considerable assistance. Even so, a problem still exists.

226 Service in obtaining books is good. -- Provided such books asked for are not out and remain out for long periods.

040 On the whole I find our library facilities and services to be excellent. One minor criticism I would have stems in part from a rather frequent turnover of library personnel and in part from the continued accumulation of official government publications (census reports, Federal Regulations, Congressional Directory, etc.). The result, from the standpoint of the researcher is a frequent reorganization of the library stacks with result of confusion in the finding of books and journals. Also, the government publications referred to are almost never used by the research scientists. Their space in the library could better be taken by useful scientific journals and other

scientific publications.







363 Books which contain old or out-dated literature are sometimes hard to obtain. They have to come from a university but access to other references are usually very good.

097 Reference material seems to be adequate in most respects although there is frequently an excess of delay in receiving through mails. A station library would be desirable.

567 In a small field station, such as where I am located (4 professional staff), the problem is in not having library facilities at all, except for journals, etc., individuals subscriptions to them. To use library facilities requires a trip. Circulated abstracting journals are most helpful; permanent retention of such journals would be helpful. If "cheap" requests could be obtained at libraries so copies of especially pertinent articles could be acquired easily, library time could be cut down.

144 Service has improved in last two years for obtaining literature. There seems to be a need for a more centralized area service.

285 I can find little to criticise in current USDA Library service based on my experience at our branch library in Wyndmoor. However, the USDA Library classification system is a disgrace to a research institution and a serious handicap to the retrieval of information. For example, relative to questions 3,4, and 5 of this questionnaire, I have, in the past, found it useful to quickly skim through texts in fields closely related to my primary interest. This is possible in libraries using the Dewey Decimal or Library of Congress systems, but not in our library where closely related books may be scattered over 20 shelves. For example, "386" covers many of the fields in which I

am interested; books on organic, inorganic, physical, colloidal, etc., chemistry are mixed together indiscriminately depending entirely on alphabetical filing by authors' names. The system is irrational in the extreme. For example, texts on statistics and filed under 251 and those on mathematics under 325 which includes titles dealing with statistics. In between books on fat chemistry are found at 307.8 while closely related texts on fat are found under 387.1. Strangely enough, books on petroleum are filed under 401 between those on pharmacology at 396 and those on fresh water biology at 409. As a result, without a detailed card catalog search, one can never determine what books a USDA Library contains in related fields.

THE UNIVERSITY OF CHICAGO  
LIBRARY

THE UNIVERSITY OF CHICAGO  
LIBRARY  
1850-1855  
THE UNIVERSITY OF CHICAGO  
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004 In research there is no substitute for a good library at hand. There is a need for a system for getting reference material in the hands of people in isolated field stations.

523 In my present location (3 years), I have had access to a large college library. Prior to this time and in the field, aside from an occasional delay in securing reproductions of specific articles, I have had excellent service from the Library in Washington and the Oklahoma State University Library at Stillwater. Very little success when it was necessary to go to New Orleans for material.

720 Main problem: sifting the chaff. Other: few new books locally available, no apparent means of selecting those worth the effort to obtain. Blessings: USDA Library photocopies and Oxford abstract cards.

867 Considerable use is made of a few selected references, recent publications, and professional journals personally owned and maintained as desk copies or as personal office files. Next in frequency of use has been selected purchases of abstract journals and publication maintained in our station library. Our station library is small and inadequate by ordinary standards because of the accessibility of library facilities of Yale University, which we freely use.

854 We are located on a college campus where good library facilities are available so we make less use of the agency or National libraries than some others. However, we find photoprint service and foreign translation: good.

845 Recommend expansion of library contacts with field personnel not having a library nearby to use such as we have here at the University. Also continue the compilation of references (subject search of literature) for such field personnel.

835 I'm located on the University of Minn. campus and rely heavily upon their library for much literature because of immediate availability. U.S.D.A. Library in Wash. D. C. is used for source of photoprints of material not locally available.

The first part of the paper is devoted to a general  
 discussion of the problem. It is shown that the  
 problem is of great importance in the theory of  
 functions. The second part is devoted to a  
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729 Anyone trained in the research field, whether that occurred during his university days or during experience on research projects, and who is located on a university campus with proper library and other research facilities is not in need of help from USDA sources.

The National Agricultural Library was helpful while at Beltsville Research Center, but, in the field, less helpful than nearby university libraries.

448 Most desirable state of affairs to keep abreast of current literature is to have latest journals within close walking distance of laboratory.

337 This station is so far from the USDA Library that we do not borrow many publications, but we subscribe to the most useful journals, abstracts, and proceedings. The USDA's "Bibliography of Agriculture" I find extremely useful, also their photo-print service.

279 Where a field laboratory is not located at a college or university it is important to have a catalogued reference list of the literature (bulletins and periodicals) that you have in your office. We have consistently tried to acquire and keep current a reference list of our own. This has been very valuable.

We have had no particular difficulty in getting any published information that we needed.

Wash. D.C. & Beltsville -  
Service by NAL:

437 The library services at Plant Industry Sta. are excellent. I am amazed by the promptness in filling requests. Miss Boyd is one of the most helpful librarians I have ever met. She worked with the late Miss Hawks of our Main Library and she was "tops."

170 Have found USDA and PIS branch library to be very helpful.

587 The Agriculture Library is one of the best. We appreciate the good service.



The first of these is the fact that the  
population of the United States is  
increasing rapidly. This is due to  
several causes, the most important of  
which are the increase in the birth  
rate and the decrease in the death  
rate. The increase in the birth rate is  
due to the fact that the average  
family size is increasing. The decrease  
in the death rate is due to the fact  
that the average life expectancy is  
increasing.

The second of these is the fact that  
the population of the United States is  
becoming more and more urban. This  
is due to the fact that the majority  
of the population is now living in  
cities and towns. This is due to the  
fact that the majority of the  
population is now living in cities and  
towns.

The third of these is the fact that  
the population of the United States is  
becoming more and more educated. This  
is due to the fact that the majority  
of the population is now living in  
cities and towns. This is due to the  
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population is now living in cities and  
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The fourth of these is the fact that  
the population of the United States is  
becoming more and more mobile. This  
is due to the fact that the majority  
of the population is now living in  
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population is now living in cities and  
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The fifth of these is the fact that  
the population of the United States is  
becoming more and more diverse. This  
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of the population is now living in  
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towns.

### THE FUTURE OF THE UNITED STATES

The future of the United States is  
uncertain. It is possible that the  
population of the United States will  
continue to increase. It is possible  
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will continue to become more and more  
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mobile. It is possible that the  
population of the United States will  
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diverse.

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mobile. It is possible that the  
population of the United States will  
continue to become more and more  
diverse.

205 The USDA library is to be commended for the excellence of its service in getting publications for reference.

871 I recently received a book from the library (USDA) about which I had been able to supply only limited information as to title, author, etc. This type of efficient assistance is very important to field personnel in research and encourages the use of library and reference services.

565 The services I have requested from the USDA Library have been very satisfactory with promptness and accuracy.

089 The system used by the USDA library has been most useful to me. They have been quite prompt in sending articles and books I have requested.

261 I appreciated the library services rendered me from the Plant Industry Station Library. The personnel there are most helpful.

444 Our library services are good. What I need is help in transferring my abstracts of advanced basic research into a working file - to be able to reach in 5 min. or less.

696 Have always received a high degree of cooperation and thoughtful assistance with special problems in seeking a specific article or publication.

701 I have found the library an invaluable source of information when planning a research study and in preparing a scientific or professional paper or talk.

550 Staff at National Agricultural Library is doing a fine job. Cooperation of librarians in getting books and references is very important.

454 I consider myself very fortunate indeed in having the opportunity of obtaining literature and various other information through our Library at Plant Industry. I feel however, that the load of the Beltsville librarians could be lessened by a better service in our Main Library, where workers should be able to study and browse but find it too time consuming if possible at all.

THE  
JOURNAL  
OF  
THE  
AMERICAN  
MEDICAL  
ASSOCIATION  
PUBLISHED WEEKLY  
CHICAGO, ILL.  
1914

715 I am very much discouraged over the lack of adequate financial support to our library in the Department. This should be the best and most useable agricultural library in the world - it is far from it.

650 Would it be possible to arrange the stacks in alphabetical-numerical sequence according to the contents of the shelves? At present it is virtually impossible to find material in the stacks unless you work in the Library.

562 In the past I have found it difficult to find published material that was stated to be stored in the stacks in the National Agricultural Library.

152 The USDA library cataloging system is poor for those who may wish to browse since it does not seem to collect similar subject matter as well as it might. The library service is good. However, mechanical or electronic aids to literature searching for scientists must soon be developed.

703 Library keeps too much outdated (older than 15 years or so) statistical report and periodical (magazine and journal) material on current shelves. This causes an unnecessary wasteful clutter. It makes material hard to find, hard to store, and easy to lose in the shuffle. I suggest the older material of this type be warehoused and cataloged outside the Library itself, but available on demand to those needing it.

702 The Department of Agriculture Library has a number of publications on the floor. Has the possibility of separating and discarding those materials which are seldom used been considered recently?

206 I like to go to the library stacks for materials when I don't know exactly what to ask for, but find the stacks of unfiled materials and the disorder discouraging.

651 The Library personnel make every effort to find requested material. However, this doesn't cover up the fact that the "stacks" are a mess. A vacume cleaner could do wonders.

315 I have been greatly handicapped for lack of prompt library service.

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 policy of non-interference in the  
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 policy of non-interference in the  
 internal affairs of the country.



666 When I came to the Department in 1930, the Agricultural Economics Library, Miss Mary Lacy, librarian, was most helpful and a real asset in conducting research. In recent years the library has been of very little assistance in conducting research. It appears to have become a librarian's library rather than a research workers library. New members of the staff are very critical of the library and compare it unfavorably with the libraries they have used in their graduate study.

327 The USDA Library is most inadequate to fill the needs of scientists for a reference library. I don't know what current journals are taken, entirely, but the current journals shelf in the field I am interested in is meagre. It would be most desirable to increase the number of journals on the shelf and to have 6 months of each journal on the current journal shelf. To keep up with things, I have to rely on the various libraries in the Food and Drug Administration.

The condition of the stacks is deplorable. Many valuable journals are piled on the floor, and so must be difficult to

find things as half of my journal requests come back marked: "Not on Shelf."

Another thing that really bothers me is the many afternoons table space is taken up by people with no real business there - folks who are getting a free look at the American Home, etc.

There is a definite need for a reference library with a respectable number of current journal and books where people can get to them. For example, the library subscribes to the Journal of Chromatography, but it never gets to the current journal shelf. Do you just go to the desk and ask for the latest issues of

what you want?

I have other ideas, too, but space does not permit my giving them all.



673 The National Agriculture Library and the service it provides could stand tremendous improvement in many respects.

First of all, to be the National Agricultural Library, its physical appearance is a disgrace. Along with the always present musty smell and dirt in the stacks, the books are always disarranged on the shelves and stacked sloppily in the aisles. I am reluctant to browse in the stacks and certainly would never take a relative or a visitor on a tour of this library.

In regard to service, there is little or none. Frequently I have desired a technical pub-

lication and have made a personal search for it in the stacks. As usual, I can never find the publication; upon checking, the library people say that the publication has not been checked out to anyone, so they make a search for the "lost publication". A few times I have never heard the results of their efforts and when I have, it's so much later that I have gone to another source.

As an employee of the Department, I would like to be proud of the physical facilities and services that the Department offers its professionals and the general public. All this, as well as the accomplishments of the Department, certainly help to breed professional loyalty to the U. S. Department of Agriculture.

In its present state, I cannot be proud of the National Agriculture Library and its services provided.

2





626 1. The quality of the reference librarians although improving, is well below the level of reference librarians at the Library of Congress and the level of Universities interested in research. 2. The Library's collection of books and journals in the field of economics and the related social sciences is weak. Many relevant journals are not available in the library, there are serious gaps in our file of the number of the journals we do get. Improvement of the general collection in these fields will require the acquisition of many out of print books. 3. Interlibrary loan service is both slow and unpredictable. When the publication finally arrives, frequently it may be kept for but a

few days. The slowness of service means that there is an interruption in one's research thinking. The unpredictability of the time of arrival means that it may arrive when you are on a field trip or on leave or when you are committed to other work. I have received some publications a full half-year after the original request. Perhaps the investigator should be informed about action being taken to borrow a book for him. As a consequence of the unpredictability of arrival of a book, the investigator cannot properly plan his work. In some cases, I have had but three or four days to read a five hundred page book of highly technical material at a time when I was pressed with the preparation of other work demanding immediate attention.

With respect to the basic economics collection, it is much judgment that the basic conception of economics applied in the selection of book purchases in this area is too narrowly applied to agriculture. The research of my colleagues would require access to literature in the broader reaches of monetary and fiscal policy, international economics and international or foreign economic development.

658 A significant percentage of the time the library can not find the item I need. Periodicals circulated by the library take too long to make the rounds--so I buy the ones I really need.

656 Too often when requesting a publication from the library, you are told "it's not on the shelf, but we will trace it for you." Then you never hear another word about the request or the results of the trace.





471 I find it difficult to obtain recent numbers (i.e. within last 2 years) of scientific journals, Usually my requests come back with this notation "NOS".

305 Routine requests usually are not filled in less than 10 days. Since I usually need articles within two days, it is necessary to go to the library myself or ask a cataloger to bring the article. Working tools assigned to me usually get lost when they are returned to the library upon request. It usually takes at least one month to locate them.

446 Routing and distribution of current literature is too slow and is not consistent. Too many important journals must be obtained from downtown Agri. Library. Current literature is no longer current by the time it reaches PIS from downtown.

186 The personnel at the NAL is helpful in searching for material on selected projects. Often, however, relevant books and journals are not available when they are needed. Many references, especially of historical value, are misplaced or require that a search be made for them. This means loss of time, and frequently the book is never found.

638 When a tracer is put in for a book or other publication at the agricultural library, one never hears from the library in some of the cases. In others it takes at least a month. This is entirely too long for a professional researcher to wait. The agricultural library card catalogs are full of old references but are not up-to-date for the most recent years -- that is, the library should obtain recently published economics books. The most recent years are the most helpful for keeping up on developments in the profession.

196. Routing and distribution of current literature was, when available, a very important source of information. The curtailment of this service has resulted in a distinct loss in many cases. The library card catalogs are useful for historical research, or for current use, if the author of a publication is known. However, under subject, the catalogs do not seem to be kept up-to-date. Current journals and periodicals are often difficult to obtain without a considerable waiting period and successive trips to the library. Also, certain journals and periodicals are now best for a limited time and obtaining copies involves an inter-library loan.

THE HISTORY OF THE  
CITY OF BOSTON  
FROM THE FIRST SETTLEMENT  
TO THE PRESENT TIME  
BY  
JOHN B. HENNING, ESQ.  
OF THE BARR

IN TWO VOLUMES.  
VOL. I.

BOSTON:  
PUBLISHED BY  
JOHN B. HENNING, ESQ.  
OF THE BARR  
AT THE SIGN OF THE  
"GOLDEN RULE,"  
CORNER OF NASSAU AND  
NORTH STREETS.  
1825.

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656 Question 10: A common complaint of mine and most of my colleagues is that the card catalog in the USDA Library is practically useless. Although it has many listings dating far back in years it is far from having a near complete listing for recent years.

944 There is a real need for a separate reading room for current materials, with many more current books on display, and a more accessible display of current periodicals, with ample space to sit down and read them. The present arrangement for this class of material, in the reference room, is inadequate and not conducive to the use by those who need it.

239 The distance between the library in Washington and the laboratories in Beltsville is a general problem. If the books are to remain in Washington, could a full duplicate set of index cards be available at the Beltsville branch?

715 My difficulty is a work load that takes all of my time. It is difficult to get time in the library that is difficult to get to and formidable to use. The Library at Cornell University or that at Oregon State University is much more conducive to use than is that of the USDA.

217 Would use library more if time were available. Library staff gives excellent assistance at all times. Library needs extra copies of some periodicals, especially when subject matter content is of interest to several research divisions.

474 The library personnel have done well in supplying scientists with books, periodicals, etc., when they are requested. Because of the shortage of recent issues of journals and periodicals and shortage of personnel, scientists often miss what they should read till a year later. It is not good.

935 The USDA Library card catalog on botany was the most useful of all sources so long as it was kept up to date. Its value has now dropped enormously, however, it has become merely a starting point in any attempt to track down information.



THE HISTORY OF THE  
CITY OF BOSTON  
FROM THE FIRST SETTLEMENT  
TO THE PRESENT TIME  
IN TWO VOLUMES  
BY NATHANIEL BENTLEY  
OF THE BARRISTER AT LAW  
IN GREAT BRITAIN  
AND OF THE COMMONS OF GREAT BRITAIN  
IN PARLIAMENT ASSEMBLED  
VOL. I.  
LONDON: PRINTED BY J. BARNES, ST. MARTIN'S LANE, 1796.  
AND BY J. JOHNSON, ST. PAUL'S CHURCH-YARD, 1797.

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324 I have only recently learned that I am permitted to go in the stacks. By doing so in the future I expect to save much time for myself and the reference librarians. It is much easier to find a current general work on an unfamiliar subject in the stacks than in the card catalog, for instance.

315 Often we are not permitted to keep a library publication long enough.

324 I have considerable difficulty finding periodicals in the library card catalog. It is partly due to my ignorance of course and also partly because names of agencies and periodicals change. Most recent example: Annual Review of Entomology - I couldn't find it under review of entomology and couldn't remember that Annual was in its title.

236 My research requires reading about 60 current journals. I am forced to intrude on the NIH library for half of these. The decision to stop circulation of current scientific journals is a serious handicap. I do intend to be kept alert in my field. My research funds are milked, and I don't get the necessary support in trying to be an above average researcher.

The Bibliography of Agriculture, Entomology Section, is almost useless to insect physiologists in its present format. Suggest that basic studies be put under "general" category. I can't even find my own papers in it! Beltsville needs an enlarged library reading room for those current serials requested to be circulated but denied us because at least five in our group want to read them. Okay, stop circulation. But let us see them. My salary won't support the: \$500 Chemical Abstracts; \$18 Ann. Ent. Soc. Am. and Jour. Econ. Ent.; \$10 Journal of Insect Physiol.; \$10 Agr. Food Chem.; \$50 Current Contents. I spend \$200 each year on books from my own funds.

651 My interest is in current outlook information. In making my own estimates, I find it difficult to keep abreast of current developments. I would suggest that the Library display Farm Newsletters, and such business reference as the Wall Street Journal. Some of these are routed, but not to the rank and file.

THE  
JOURNAL  
OF  
THE  
ROYAL ANTHROPOLOGICAL INSTITUTE  
OF GREAT BRITAIN AND IRELAND  
VOLUME 11  
PART 1  
1881

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BY  
H. SPENCER

THE  
ANTHROPOLOGY OF THE  
FUTURE  
BY  
H. SPENCER

THE  
ANTHROPOLOGY OF THE  
PAST  
BY  
H. SPENCER

658 Most of our research is on current problems and hopefully in anticipation of future problems. Thus, the services offered by the library are of limited usefulness to me. I use my own text book, bibliographies, reference files, bulletins, etc., and those of my colleagues more than those in the library.

670 It is difficult to say which sources are most valuable. Depending upon the problem, some are more valuable than others. I suspect that the question of sources of ideas is a different one from that of sources for information once the idea or problem to be solved is known. For the most part I tend to rely upon personal contact for ideas and new approaches. I use the library extensively, however, this is primarily to obtain the information and data that some problem requires. To me its greatest value is as a repository of an extensive amount of useful source material rather than a source of current ideas and approaches. I think it is as it should be.

Almost all current information is obtained through subscriptions of Soviet and East German press and current periodicals, some routed to us by the Library and others not. The major service the library provides, as far as I am concerned, is in providing material for retrospective searching and obtaining books and periodicals.

675 I feel USDA library is behind on purchase of current books in my field of interest. Sure, we can get anything from loan services, but without an up-to-date card catalog or reference list, who knows what has been published recently. Also, something should be prepared on the library to orient new employees on its use. I have been here over 6 months and learn there is something new every time I use it. I would recommend a one or two day school for all new professional workers to explain the library system to them and how they can use it better and more effectively. The length of time it takes to get books through the Library of Congress or other

sources causes costly delays in research. It is often cheaper to go buy the book and charge it to agency rather than impede research progress.





2. NEW SERVICES SUGGESTED:

(1) Description of NAL services

391 I would like to have access to types and availability of information sources from National Agricultural Library. How could I get this information?

399 It would be of high interest to know: What services of The National Agricultural Library are available to the ARS personnel located at various field stations especially in the area of literature from behind the Iron Curtain countries and an outcome of a survey pertaining to their use and future needs.

406 Would like to receive an annual reminder for myself and colleagues of library facilities and services available to field personnel. Same should be more detailed and explicit than it has been in the past so that we will know what requests will be within reason.

346 List might be circulated annually to remind people of the services available to them.

201 If a specialist from the NAL could make a first-hand study of our needs, he could no doubt instruct us as to what is now available and devise a good system for us to make use of present and future material and facilities.

191 Our laboratory location is in a small town not located near a major college or university. Awareness of library services available would be of considerable benefit.

007 Informational material should be distributed on what is available from the National Agricultural Library, how it can be obtained, time interval involved, what forms if any, need to be filled out, etc. This information should be distributed at least annually, particularly to USDA locations without the adequate reference libraries which are found in universities.

098 We need to know the services available and procedure for obtaining desired information also charges for obtaining reprinted material. Field personnel at out of the way stations have little or no information on the USDA library. An information booklet of some sort would be helpful.



Vol. 40, Part 1, 1910.  
Published by the Royal Anthropological Institute, 21, BEDFORD SQUARE, LONDON, W.C.1.

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629 I am a relatively new employee. It would be helpful to me if I knew just what services are available from the library.

628 Would appreciate an additional request from the library:

A list and brief summary of all of the many services of the library.

USDA officials (particularly research professionals) should be able to speak directly and thus utilize directly the many services available.

584 I found the circulation of current journals very helpful when this program was in effect. At this point I am not aware of what services are available to me from the USDA Library.

570 We would like to know how we could use USDA Library facilities to better advantage in searching for literature on various subjects in our field.

569 I feel sure that there are sources available that I am not making the best use of. The library services may be able to help people make more use of these sources by letting them know what is available and how to obtain it.

520 It would be of interest to know what services of the National Agricultural Library are available to USDA employees overseas and to what extent these services may be rendered via air mail. Surface mail from U.S. to Kenya keeps one 2 months behind on current literature.

892 The USDA Library is in Washington - the researchers (in this case) are in Missoula, Montana; but the separation is more than one of distance in miles - there exists a general lack of knowledge here as to what you have there, and how best to get it. Moreover, the service is sometimes weeks in coming to us from the library. The vital research information that you hold should be almost "at the fingertips" of the researcher.

894 We (Northern Fire Lab.) have had some difficulty in acquiring material from the USDA library. Part of the difficulty lies in our lack of knowing exactly how to request material and in part due to the long interval between request and receiving material.



## (2) Abstracting Service

400 Good abstracting service is becoming indispensable.

339 I would like to see more abstracts of current literature and have fewer journals circulated to me.

303 Needed is an abstracting service available to us, which would abstract information on methods, etc., pertaining to pesticides.

162 It would be helpful to have abstracting services especially of foreign journals.

032 Current library facilities are fine. An added service for abstracting, or searching, together with some type of fast, inexpensive copying procedure would be of great value.

782 Facilities which produce only lists of titles are hopeless; we need abstracts which give results; we need specific interconnection of subject material; we need services not the address of the library.

868 Bibliographies, especially abstracted ones, are very helpful in research. But it is also hard to substitute for library catalogs; reference services; routing of references; personal contact; and personal files, master and reference lists.

676 My observation is that efforts focused upon development of abstracts and indexes have outstripped the routine house-keeping chore of keeping materials readily available. This factor has seriously limited my use of library facilities and has resulted in reliance upon personal files and specialists.

819 Abstracts and routings of pertinent literature usually precede the library acquisitions lists; thus I prefer the former. One doesn't have time for just browsing in libraries on the chance of finding something useful.

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1649

BY JOHN BURNET

IN TWO VOLUMES

LONDON

Printed by J. Sturges, at the Angel in St. Dunstons Church-yard

1724

By Authority

Printed by J. Sturges, at the Angel in St. Dunstons Church-yard



085 Because the volume of literature is so great, better abstracting services are needed than are now available.

632 It seems to me that it would be helpful if we could have an annual digest of current scientific inquiry, arranged in alphabetical order with a short, concise summarization of each study as soon after publication as practical. I would exclude popular, catchy items that often lead to wasted time searching for leads.

(3) Special Bibliographies, Lists  
of recent acquisitions, Table of Content

522 If economically feasible, an annual reference list of publications for rather specific fields (e.g. Cotton Breeding Genetics) would be a great asset to the research, particularly those who have limited access to libraries.

758 I do not wish to slight card catalogs as a research tool. However, the voluminous literature in the field of entomology is better handled by periodic indexes than by card catalogs. It is possible for only the largest and best-staffed libraries to maintain up-to-date card catalogs in this field, and even then a centralized title service is needed to obtain a complete coverage of all literature.

608 More comprehensive lists, bibliographies or abstracts of articles, papers, or bulletins on farm mechanization are needed. These should be published semi-annually or annually.

618 Periodic cumulative indexes available by fields of study particularly to field offices.

375 A new publication, corresponding to "Chemical Titles" in agricultural and biological subjects would be very useful. More complete library services including bibliographic searches would be desirable (the librarian would require subject matter competence).

335 Preparation of bibliographies, particularly along subject matter lines, by the USDA Library (Wash., D.C.) has been very helpful to my research program. Since I am located on a university campus I have access to library facilities.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
CHICAGO, ILL. 60637  
U.S.A.  
1968

TO THE HONORABLE CHAIRMAN  
OF THE BOARD OF TRUSTEES  
OF THE UNIVERSITY OF CHICAGO  
CHICAGO, ILL. 60637  
U.S.A.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
CHICAGO, ILL. 60637  
U.S.A.  
1968

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DEPARTMENT OF CHEMISTRY  
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DEPARTMENT OF CHEMISTRY  
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U.S.A.  
1968

201 Our work is very specialized and comparatively new and limits the source of background material. Each member of our staff needs a booklet listing all publications in the field of cotton ginning, cleaning, harvesting, packaging and related research.

094 The amount of scientific literature in my field is large and poorly organized and catalogued. Literature searches are tedious and time consuming. Sometimes important and modern publications are overlooked, causing errors or duplication in research work. There are strong needs for up-to-date bibliographies that are complete.

683 Why cannot Library prepare, and circulate regularly, lists of recent acquisitions? One handicap is lack of availability of, and extreme cost of, translation services. One time bibliography of cotton literature was most helpful. Another handicap is 6 months or 1 years time required to publish U.S. Government publications.

690 I think emphasis should be placed on the sorting out and classifying the available research and technical material in line with the interests and needs of Divisions or other administrative areas. Those involved in administrative and operational work require completely different research material than scientists, for example.

755 More complete subject matter bibliographies would be helpful. Translations of important foreign publications would also be useful.

025 All USDA research units need to receive cataloged reference cards on a current basis (with basic file available for new offices etc.), in subject matter areas with which they are directly concerned (elect to receive). Present agency reference lists are not cataloged, are cumbersome to file and retrieve, and are overlapping and incomplete. Should come from central library service.

500 There are items listed that would be of great value to research personnel in the field but are not available such as: Library acquisition list, published indexes or catalogs, routing and distribution of current literature and library reference services.

The first of these is the fact that the  
the second is the fact that the  
the third is the fact that the

the fourth is the fact that the  
the fifth is the fact that the  
the sixth is the fact that the

the seventh is the fact that the  
the eighth is the fact that the  
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the eleventh is the fact that the  
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the fifteenth is the fact that the

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the seventeenth is the fact that the  
the eighteenth is the fact that the

the nineteenth is the fact that the  
the twentieth is the fact that the  
the twenty-first is the fact that the



### 3. REINSTATE ROUTING PERIODICALS

027 An improved system of routing or circulation of recent issues of journals and periodicals related to the research at field locations that do not otherwise have access to such material is needed.

069 Circulation of current issues of periodicals, journals and magazines should be resumed. This especially applies to those materials the individual does not normally subscribe to. Example: Transactions of the Faraday Society.

147 Should like to receive regularly (without having to request each one) some current journals to which our library does not subscribe, but can borrow (especially in this city) on inter-library loan. The journals the library subscribes to are the ones of interest to most of the employees and parts of my problem are different from all the others.

Would like to have my problem included in Current Articles of Interest to SU Research, selected by SU Screening Panel, which is distributed regularly before the journals are circulated.

Some articles on Microbiology are listed but are very seldom those related to my work (problem).

Our librarian has asked for this service, listing topics of interest to me, but this Panel does not include references valuable to me and which I find months later when I receive the journals thru the regular circulation procedure.

280 Circulation of current periodicals would be desirable at stations such as this one where no research library is easily accessible.

386 With so many journals and periodicals which may or may not be pertinent to the interest of the researcher, the routing and distribution of current literature is extremely slow. For the most part a glance at the table of contents is sufficient to tell whether or not any articles therein are pertinent to the investigator. It is suggested that the routing and distribution of the table of contents in sufficient quantity would improve speed of routing and current awareness of the researcher.



The first of these is the fact that the United States is a young nation, and that its history is a history of growth and development. It is a history of the struggle for independence, and of the struggle for the establishment of a government of the people, by the people, and for the people.

The second of these is the fact that the United States is a nation of immigrants, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The third of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The fourth of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The fifth of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The sixth of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The seventh of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

The eighth of these is the fact that the United States is a nation of free men, and that its history is a history of the struggle for the establishment of a government of the people, by the people, and for the people.

396 I was sorry that the routing service of the USDA library at Gainesville, Fla. was discontinued.

400 Research scientists at many field stations, such as mine, are severely handicapped by lack of access to a good research library. The closing of USDA branch libraries (actually State Experiment Station cooperating libraries, such as at Lincoln, Nebr.) which terminated the regular routing of current issues of scientific journals also has deterred research progress. Most State libraries do not offer this service.

481 The USDA circulating library managed at one time by the Univ. of Nebr. Ag. Library, was a wonderful service. It should be reestablished at the earliest possible date. Journals received in the mail are the most accessible source of information.

484 A scientist must keep abreast and informed in order to become and remain an effective worker. Often times he cannot bear the cost of subscribing to what literature he needs, particularly when he is at a branch station. It is money well spent to help him in his quest for knowledge by providing him with some of this literature.

491 Concerning "routing and distribution of current literature" - The Univ. of Nebr. library formerly had a contract with USDA library to route selected journals that the individual did not have available. This was an outstanding service as few of us spend as much time in the library as would be needed to keep well acquainted with additional fields of interest.

I would like to see more use made of routing procedures for selected journals.

564 The discontinuance in 1959 of the circulation service by the University of Florida Library of journals of current interest to the USDA has caused a great deal of hardship to the research workers at this station. The excellent library service of the USDA Library does not compensate for the lack of circulation of current journals.

043 Routing and distribution of current literature in the form of periodicals is I believe an undesirable method for keeping up to date. It is not uncommon to receive these periodicals 1 year after publication on a routing list.

THE JOURNAL OF THE  
ROYAL ANTHROPOLOGICAL INSTITUTE  
OF GREAT BRITAIN AND IRELAND  
VOLUME 100  
PART 1  
1970

THE JOURNAL OF THE  
ROYAL ANTHROPOLOGICAL INSTITUTE  
OF GREAT BRITAIN AND IRELAND  
VOLUME 100  
PART 1  
1970

THE JOURNAL OF THE  
ROYAL ANTHROPOLOGICAL INSTITUTE  
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ROYAL ANTHROPOLOGICAL INSTITUTE  
OF GREAT BRITAIN AND IRELAND  
VOLUME 100  
PART 1  
1970

086 Keeping abreast of current literature was much simpler for me when periodicals were circulated systematically from the library.

085 Routing and distribution of current literature by library has been discontinued for the most important journals and it is difficult to find time to go to the library to keep up with the large volume of literature in food research.

573 The unavailability of recent publications still undergoing routing and circulation is a constant source of difficulty and delay. I think recent and current periodicals should have a much longer in-library shelf life before circulation.

560 I would like to see circulation of periodicals started again for the Agricultural Research Center. Though the Library at Plant Industry is close by, we are not as inclined to use it as if it were on the same campus as is true for the Plant Ind. employees. However, it is not as adequate as circulation. The circulation should be strictly controlled so periodicals are not held on desks for long periods of time.

545 Easy and convenient access to locally circulating, current, professional journals and other literature is vital to the research scientists; it is better to see the literature even 6 months outdated than not see it at all; a good system of circulation (including all of its well known problems) should be worked out by the NAL because, rightly it is the Library that most research scientists turn for guidance in such matters; no one could be more diligent or efficient in the business of supplying books (or journals) on request than the personnel of NAL.

544 There seems to be a fairly general feeling in our laboratory that the circulation of scientific periodicals should be increased. However, many of the research personnel use our catalogue for a source of scientific information.

474 Recent issues of journals or periodicals should be circulated to scientists who need to be informed about what is going in his own field of research, while he is busy working in the laboratory.



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435 Routing of current journals should be reestablished to those people who are actually actively engaged in research. Many articles may be delayed in passing from person to person but will nevertheless be seen whereas with the current procedure there are never seen. It takes too much time from a persons schedule to make special trips to the library merely to scan literature.

309 In the past, circulation of journals and local specialized libraries with a specialized attendant have been most valuable - Elimination of these decreased effective library service for specialized research workers.

262 Routing and distribution of current scientific journals should definitely be reinstated. Present regulations with regard to this are ridiculous.

197 The new book shelf in the library has been very useful to me. On the otherhand, the curtailment of the routing of professional journals and the slowness of routing of those that do come (e.g. English periodicals) is a handicap.

187 Our work in the food composition unit of CFE has been severely curtailed because journals important to our studies which require abstracting are no longer routed.

426 Current Contents has proven very useful since the circulation of periodicals was discontinued.

553 I do not think that problems of retrospective searching arise primarily out of deficiency in library services per se, but rather out of the lack of really adequate tools for ascertaining what references exist to information in the area of interest. Within this Division is maintained an indexing service of our own which is an invaluable aid and will become even more helpful as additional parasitological subject headings are introduced; I refer to Index-Catalogue of Medical and Veterinary Zoology, which is actually an index to Parasitology, the major area of my work. For current awareness, no system can take the place of routine circulation of those journals indicated by the

worker as the ones he desires to have pass across his desk as each issue appears.



#### 4. PHOTOCOPY OR REPRINT SERVICE

567 As above, how do outlying field stations avail themselves of these services conveniently? Reprint services (photocopy etc.) that are inexpensive enough so library trips would not be necessary would be helpful. At present reprints ordered from libraries are too expensive. It would be helpful if you could order reprints of selected articles from libraries and have them inexpensive enough so you could afford to buy them.

044 Microfilming old journals would simplify looking through old journals.

168 Self-service copying services should be made readily available in library area.

135 Please continue to make photoprints of journal papers quickly available.

273 The library should provide a rapid copying service. Much time is lost in obtaining reprints of articles.

295 A Xerox machine for rapid copy service would be an excellent addition to library equipment, since present equipment is entirely inadequate and inferior to the Xerox.

190 At the division level (publications officer) a system should be set up to furnish individual researcher reprints of copies of publications in the area of his particular field and other requested information. This material should be fed directly to the individual researcher in the field. Part of research administration should be to keep the researchers up-to-date on the problems assigned to them, and to encourage the researchers to publish their results as soon as possible.





314 In this work it is necessary to see the original publication whenever possible in order to determine the actual date when the published information was made available. This date is not always the same as that on the cover or binding; it may appear inside somewhere as "date of issue; date of mailing; date of publication." This actual date of publication is important in any of the fields of Zoology (of which Entomology is a part). Any plans to restrict the circulation of publications and substitute photostated pages in place of the complete book, journal, or whatever, would be a great handicap to any workers concerned with problems of insect taxonomy.

516 Photostat copies of papers are good sources of information. Need more journals covered in USDA Library service, however.

310 Because of our limited size and space, we must depend on the USDA library for copies of important papers; and photoprints are rather expensive.(Alaska)

##### 5. TRANSLATION SERVICES AND FOREIGN JOURNAL COLLECTION.

690 I find the USDA library service, particularly the foreign material, to be excellent.

779 I have found the USDA Library very good at obtaining old or foreign papers. Most of the current and domestic material is available in the local libraries.

256 Many good articles are printed in foreign journals, in foreign languages, which are pertinent to my field. What is the procedure used to obtain these articles and translations of them?

062 I would like to be able to obtain foreign publications and have them already translated.

443 The National Agricultural Library is not as fully up-to-date on technical publications especially foreign as they ought to be.



THE  
HISTORY  
OF  
THE  
CITY  
OF  
NEW  
YORK  
FROM  
1624  
TO  
1898  
BY  
JOHN  
B. HOGAN  
AND  
JAMES  
M. SMITH  
NEW  
YORK  
1898

PUBLISHED BY  
THE  
NEW-YORK  
PUBLIC  
LIBRARY  
ASTOR LENOX AND TILDEN FOUNDATIONS  
NEW-YORK  
1898

PRINTED BY  
THE  
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NEW-YORK  
1898

174 The time involved in getting reprints of articles in foreign journals often involves two or more months through the library. Library services in other respects are excellent.

093 Attempts to obtain foreign literature have been unsuccessful. Lists of foreign publications are lacking and translations of articles are even more lacking.

759 The biggest problem is keeping up with good foreign work. It is hard to find out about what is available. Routing of translations will not help; one must know of the publication before a translation can be ordered and some translations have been quite inaccurate.

693 1. Too time consuming - press of current activity does not permit search for reference material.

2. Material available is not sufficiently current, especially as regards information from foreign countries.

081 We need more and broader range translations of foreign articles.

778 I would like to see better arrangements made for aquisition of Scientific material from foreign countries. For example, I wanted to obtain a particular article from the Indian Govt. Publication Office. The Indian Govt. would not send the reprint until it received the money for it and the U. S. Govt wouldn't pay for the reprint until it was received. I ended up buying the reprint myself out of my own pocket. It also cost me as much for an international money order as it did for the reprint. This system seems to be rather inefficient as far as the distributior of scientific literature is concerned.

787 I would appreciate being made more aware of foreign translations and abstracts.

829 One of the biggest library or reference needs is not covered in this questionnaire-- that of the need for translations of foreign language research publications - particularly Russian, Finnish, and Swedish articles in Forestry.



503 Thought should be given to problem of translation of foreign material. Graduate school training in language inadequate for rapid translation and it is too time consuming to learn.

006 Need rapid access occasionally to some of the more obscure foreign journals.

6. COMMENTS ON OTHER THAN  
NAL INDEXES OR ABSTRACTS

933 The new format of ASTIA technical abstract bulletin, makes it more difficult to cover all of the listings without extra effort. Also these listings are duplicated by OTS. This provides a duplication of service rather than additional services and makes periodic review by individuals more laborious.

052 The uniterm index to chemical patents is very fine. Wish Chem. Abs. could be so arranged so we can cut down on our searches.

930 One of my most important sources of technical information is the abstracting journals. However, certain features of some of these journals necessitate laborious perusal. For example, the ASTIA Title Announcement Bulletin has for about 2 years been using a print which, in my opinion, is much more difficult to read. In another example the regular issue of the OTS publications announcement employs a scheme for categorization of articles that seems chaotic. From my personal viewpoint, review of these bulletins is rendered unnecessarily difficult and time-consuming because of the described features. Perhaps, more attention should be directed toward legibility in preparation of

such publications, and I personally would encourage any pressure that can be applied along these lines.

811 May not be your concern at all, but change of Biological Abstracts to use of BASIC and abandonment of "Sections" (which are a fifth of the price of the complete edition) is a problem because we browse in this publication, BASIC is fine for searching but is not a substitute for the abstracts themselves.







—785 I believe the relatively new "BASIC" system of title abstracting and listing is a good crude start which could be made more effective by (1) separating into broad disciplines (too much "drivel" to look at now), and (2) using larger type.

389 The most useful method for keeping up-to-date on current publications has been regular use of Chemical Titles. The biggest problem is obtaining copies of journals which are not available in the library at Western Regional Lab. or easily accessible at other libraries.

296 Chemical Abstracts is a main source, but about 6 months behind. Attendance at scientific meetings, current journals and abstracts of papers to be presented before publication help to keep information up to date.

287 The journal "Tobacco Abstracts," prepared and published by the North Carolina Experiment Station, is the most valuable source of information in tobacco research. More such efforts in other agricultural fields would probably be useful to those working in these fields.

280 I find I must rely on abstracting journals for most of my sources. These are usually 1 to 2 years behind the field and are usually only useful for methods.

274 Indices to abstracting journals (for example Chemical Abstracts) are becoming so delayed that they are almost useless for maintaining current awareness. BASIC makes Biological Abstracts more dynamic

261 A research worker usually has a definite problem to be solved. The only literature a researcher is interested enough to read in is something pertaining to his problem. I consider the abstracting journals or services invaluable such as Current Contents, because one can do a quick scanning with a relatively short time.

163 Regarding question #10, published indexes (for example those for Chem. Abs.) are published too late to be of use in finding current information.

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072 In reviewing pertinent literature, I use the Agricultural and Engineering Indexes almost exclusively then articles in the index are reviewed to find other sources.

506 The British abstracting journals are very useful for my work: Review of Applied Mycology, Plant Breeding Abstracts, Empire Cotton Grower Review.

530 It seems about time that professional journals began publishing their tables of contents separately and making these tables available to non-subscribers for a nominal fee. Perhaps there is a need for journals in the several fields which publish nothing but the tables of contents of other journals. One can afford to subscribe to only a small number of journals, and, consequently he frequently is ignorant of an important paper in another, perhaps obscure, journal until he reads an abstract of the paper long after its publication. Those far from large libraries are especially handicapped.

559 It should be noted that the "Index-Catalogue of Medical and Veterinary Zoology" and the "Treatment Catalogue" maintained at the Beltsville Parasitological laboratory are invaluable aids in our type of research.

7  
7. NAL COLLECTION NEEDS

609 Agriculture is very important in international economic development. It is also important to U. S. trade, accounting for one fourth of U. S. exports. The F.A.S. and two divisions in E.R.S. work on these aspects of agriculture. It would be helpful if the library had more publications relating to our work. These would include journals and recent books on social, economic, and political problems in the underdeveloped countries. An example is Kyklos, The International Review for Social Sciences.

657 The personnel of the library generally try to be helpful. The coverage of current economic literature in the library, however, is negligible. The library should at least maintain a complete file of economic journals even if they do not carry new books.





125 Library acquisition list generally has very few papers on bacteriology.

169 In most cases I must depend on memory of article and journal for information retrieval. The trip to library is too time consuming for frequent use. Furthermore the USDA library tends to chemistry and not engineering.

562 Would like the National Agricultural Library to have a more extensive collection of technical magazines pertinent to the various segments of the chemical and allied industries e.g. coatings field, lubricant field, thermal insulation field. My work requires familiarity with publications related to the practical and economic aspects of the chemical and allied industries fields.

178 We are badly in need of library work in textile literature whereby it can be found easily. Something like Chemical Abstracts. It is now in a confused situation and getting worse.

179 The NAL seems to lack any great amount of historical material on the application of electricity to agriculture. Our office files seem to have considerably more material that is occasionally needed.

160 My greatest need at present is for technical information about highly specialized commercial products.

193 The USDA Library has been unable to obtain many reference materials requested through the years on subjects in the physical and engineering fields.

220 Many books I use are available in the Library of Congress but obtaining them for use in my office is not satisfactory. The time for transportation limits time in use. The books on textiles or pertaining to their end use are few in the NAL compared to other subject matter fields.





## 8. IMPROVE TECHNIQUES OR PROCEDURES

897 Translation services have been good. An effort should be made to locate the mass of literature by punch cards, electronic equipment etc. and to distribute it through closed circuit television, telegraph, etc.

846 It seems to me it is about time that USDA take advantage of advances made in computerized information retrieval systems. I believe the main problem for the researcher is obtaining up-to-date lists of pertinent references prior to beginning studies. Also, there is sometimes great delay in obtaining references.

129 Electronic systems should be installed as soon as possible as it will have to be installed eventually.

806 A literature search and retrieval service would be most helpful.

788 So much material pertaining to watershed comes from different gov. agencies, i.e. - FS, SCS, Corps of Engineers, USGS, etc. Much of it is repetitive or pertains only to a small specific area. It would be fast and efficient to have a central pool of all this data and material for requesting purposes.

773 Keeping abreast of the ever expanding volume of scientific literature becomes a more serious problem every year. My colleagues share my feeling of inadequacy in coping with this problem and trust that the questionnaire will help to indicate which sources have been most fruitful. We suspect, however, that the responses will vary greatly. It is hoped that a way may be found to catalog titles of world literature (including journal articles) electronically but first some way must be found to screen important work from trivia. I hope that someone competent in the field of library services will find a solution to this urgent problem.



251 With the tremendous growth of scientific literature, I believe that effective retrospective searching will have to be done by persons specially trained and assigned to that duty but with basic training in the fields of science they will cover. This work would have to be centralized if machine methods should be adopted for searching, but that would have some disadvantage in that it would make difficult any close liaison between the literature searcher and the scientist who wants the information.

747 Isn't cataloging the place to begin mechanized information handling? .

813 We sadly need an "information extraction service," an agency to which you could send for literature searches, eg. - a list of references on systemic fungicides or plant tissue culture and on down to more specific topics; also charges for photocopying service for those accumulating a literature file. Former system could be handled as does ABSIC index via IBM.

365 There is an acute need for some faster method by which divisional libraries can directly order new books. The time-lag has been especially long in the case of books ordered from overseas sources.

9. CRITICISM OF THE INDIVIDUAL  
RESEARCHER OR AGENCY'S POLICY

9 138 Source of information p (attendance at scientific and technical meetings) in each question could be most advantageously used in many instances if administration policy was so inclined. It could be a most useful source if those directly involved with the research problem were permitted and encouraged to attend scientific technical meetings and meet with scientists and engineers.







575 All things considered, I think the libraries render a most helpful service of varying nature and wide scope. All services that I have received during the past 40 years from USDA, Library of Congress and other Federal libraries, and various state libraries have been efficient, thorough, painstaking, and cordial. It is unfortunate, I think, that more people--especially research people--do not use the present library facilities more extensively. There is a growing tendency, it seems to me, for the young research recruits of today to "fire off" with new project statements and to get going as fast as possible, without first surveying and digesting the published literature on the subject in

question, and without ascertaining what is known and not known about the subject, how the knowledge was obtained, and what difficulties were encountered. This, however, is the fault of the individual research worker and not of the library services. His attitude and approach need improvement!

928 My worst library problem is convincing my boss that library searching and literature reviewing is not a waste of time. My searching is done surreptitiously on the sly and this is very discouraging.

The biggest problem in literature reviewing and usage is the government literature - it is the least accessible. The first ASTIA Index covering documents 1-70,000 is a start but just try and retrieve information from documents 70,000 on up. It is very disheartening. It would be a real contribution to have the rest of the documents indexed.

336 Item 1. Attendance at meetings have been available but I have not been able to attend many because of inadequacy of funds.

226 I would like to see improvement made in the routing and distribution of current literature. Men in the lower echelon rarely get to see such literature, even if their names are on the circulating lists.

077 Criticism of our Agency-Division policy: Recent or newly received journals and periodicals remain on the desks of our administrative superiors for an unbelievably long period (sometimes several weeks) before being circulated to those of us who are actually doing the research.



338 A better budget for desk copies of technical and reference books would help provide information when needed and save time. It is difficult to get approval of librarian for extra desk copies of important books. In addition since the majority of good books are out on desk loans it is not easy to browse in library.

049 Administration of our budget is such that it is difficult to obtain new books, while new equipment of much higher cost is relatively easy to buy.

329 My experience indicates that library policies at field stations reflect the ideas of the local directors. This is desirable to some extent but there should be certain fundamental policies uniform in all stations. The National Agr. library should disseminate information on and encourage the use of modern library techniques as they are developed. Useful information often originates from Dissertation Abstracts. Are photocopies of dissertations readily available for our use?

#### 10. PERSONAL CONTACTS AS A SOURCE OF INFORMATION

765 Contact with colleagues (by correspondence, too), personal files, abstracting journals and bibliographies are the most useful tools I have found in my research. Office reference files and superior periodicals are the best aid.

794 I take a great deal of leave without pay to attend lectures and seminars and I feel that it is in these hours that I find most of my rewarding information ideas. The only way that I can show this on this is by checking the inadequate "Personal or Professional Activities Outside USDA."

736 Regarding question 2, new ideas are our most important need and the most difficult to obtain. Foreign travel or international meetings where it is possible to discuss problems and studies with counterparts who have taken entirely different approaches is especially good.

001 Research workers carrying out related studies in the various places of the nation should contact each other more frequently. Progress reports or short notes are a good means of achieving this.





958 Do most general researching through personal contact and continued watching of current publications and related routed references.

825 A related subject - Relaxation of regulations concerning corresponding with workers in "Iron Curtain" countries would be very helpful.

024 Most of my research has been confined to a reasonably narrow field of agriculture in which specialized technical papers are most useful. However, there are frequent cases in which a paper will appear in a journal not usually reviewed and this paper may prove to be very valuable. Consequently, the abstracted journal service is most valuable. Above all, personal contacts with colleagues and attendance to scientific and technical meetings are the best source of material.

920 I work in an area of sponsored Military research to a considerable extent. In this area, information is seldom published, but reprinted in individual project reports. These are hard to locate. Personal contacts are important.

#### 11. NAL INTERLIBRARY LOAN SERVICE

546 1. I have to wait too long for books that have just been printed. 2. I don't want the library to question me with: "Is this material needed for official duties?" To me, all information is "official" since it is a source of good ideas. 3. The library should ask for all materials I request. They shouldn't ask me: "Shall we borrow this," if I didn't need it, I wouldn't ask for it. I don't care if they need to borrow it. That's their job, not mine.

021 We maintain a small library of our own at the laboratory, and interlibrary loans are an invaluable service for obtaining needed information.



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333 I find a need for opening the channels of communication between the individual research worker and the USDA Library for such services as photostats and book loans. These things are possible (within limits) but they are needlessly slow and devious; communication should be direct and service prompt. I do not know the solution to the problem of the research worker having access to the broad spectrum of journals that he needs (unless he is located near a major library) but there is a problem. Abstracting journals are very helpful, but they are not entirely adequate. Why cannot the USDA Library involve itself with the inter-library loan network? I have encountered great

problems in procuring library materials that the USDA Library did not happen to have and that I could not find locally. An Inter-library loan could solve such problems simply.

449 I am somewhat surprised at the number of articles the USDA Library (Washington) does not have on hand in the field of Agriculture. Examples, Annual Reports of the Rockefeller Foundation from the country of Columbia for the years 1950-53.

The long, laborious job of obtaining inter-library loans is frustrating to say the least. Logistics, mode of transportation and who bears the cost, seem to play an important role in the transactions of borrowing material from foreign libraries. Example, University of the West Indies, location Trinidad, will loan material for 30 days. It is shipped by surface mail

requiring about 2 weeks, leaving 2 days for use before it is shipped back in time for it not to become overdue. And perhaps the first time it is overdue then no more inter-library loans. The procedure for handling inter-library loans needs to be more efficient and expeditious.

## 12. GENERAL COMMENTS

293 The continued increase in the number of scientific journals has made it impractical and undesirable for an investigator to even read the titles of all the articles related to his field. However, it is essential for him to become aware of and have available pertinent literature. I think that scientific literature can best be used by reviewing a specific subject as needed, that is, reading for a purpose rather than to accumulate facts.





287 The biggest problem is finding time to read all that should be read, not just cursorily, but thoroughly, with subsequent organization, digestion, and use of what is read. Library services can't help much in this, unfortunately.

862 A major difficulty is availability of articles in obscure or unnumbered series of publications. Many agricultural experiment station publications and one-time reports of committees and similar bodies are of this kind.

641 Many results of economic research are published first, and sometimes only, in mimeographed form. Is there any practical way of keeping abreast of such releases?

821 In my field, a screening and selection of trade journal articles would be most helpful.

404 Since I am concerned with only one crop-sugarcane, it is not difficult to keep informed since we have all the current publications available.

844 In general, I find that the services obtained from libraries are very good. There may be a lack of awareness by researchers of materials available on certain subjects.

777 The time lag is frequently too long between completion and publication of research results. Some means of speeding up may be helpful toward progress in forest insect research.

783 I find it difficult to maintain personal and agency reference files. Recovery of titles from lists for use has often been unreliable and slow, suggesting that I need a more comprehensive filing scheme.

750 There are occasions when a search of old literature is required even though it is not current.

448 Most desirable state of affairs to keep abreast of current literature is to have latest journals within close walking distance of laboratory.

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417 Trying to keep abreast of current trends and findings is very time consuming and therefore I am able to do only a poor job of current literature reading. Anything that would speed the process would indeed be a help!

384 Language problem is important, of course. Also the prompt location of information in station or other publications that have restricted circulation.

361 The whole field of information retrieval is fascinating, but while I have tried to make the best use of available resources, I have consciously avoided getting concerned with the broader aspects because it would divert time which should be spent on my assigned duties.

528 In my work the Bibliography of Agriculture is very useful. May I suggest that its usefulness is somewhat impaired by its bulkiness. In my case I refer to the "Plant Science, New Periodicals, Translations, & FAO Publications!" The remainder of the listings are very much of a nuisance mostly because of the bulk - to which I very seldom refer. Thus, storage space is used unnecessarily. Would it not be possible to put this into several sections. The added summary of numbers is good and is regularly used by my students and myself.

771 It would be helpful if the author's address were listed in the Bibliography of Agriculture abstracts. This would facilitate reprint requests from author and reduce requests for article to National Agricultural Library.

216 New information is received from the following sources: 1. new journals; 2. attending meetings; 3. USDA Bee Culture Library - Beltsville; 4. abstracting services and University Library here.

216 Copies received when requested of important papers published in hard to get journals are very useful.

214 Our only library use is to request reprints of journal articles. We do purchase from project funds reference books for our use.

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118 More comprehensive review articles would be very helpful in keeping abreast of current literature.

107 Ref. Items 9 and 10. The literal deluge of published information defies the most Spartan effort to keep abreast of pertinent information in a field where aspects of virtually all the basic sciences meet and are important as is the case with soils. The literature is simply overwhelming even if one had no other time commitments or a responsibility for research (See attached thermofax sheets).

348 There is only time now to read titles of papers unless they interest us. Therefore, titles to scientific papers should be proper and indexed very carefully by librarians, etc.

092 Keeping abreast of the literature in ones field of interest is becoming increasingly difficult. It requires concerted effort. At times I have probably spent too much time reading scientific and technical publications.

073 The first and foremost problem in ARS is dissemination of new technical information, to those who indicate need, as it is published. Current duplicative buying of periodicals by agencies and the library is very wasteful.

063 The unprecedented growth in current scientific literature is creating unprecedented, perhaps insoluble problems for the investigator --it is physically impossible for him to both investigate and keep properly abreast of pertinent scientific literature. Our library service needs to take imaginative leadership in attacking the problem of collecting, collating, cataloging and retrieving information so that the investigator can be provided with the means for determining the current status of progress in his specific field of inquiry and have time to profit from this information.

419 The biggest problem today is available time one can spend on current literature. This point is not specifically mentioned in this questionnaire. Sources used frequently are determined by the time one can spare or make in his overall program. Those of us in USDA stationed at large universities are very fortunate indeed when excellent library services are available. The only problem is the one mentioned above.

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896 Mass of available literature on any general subject now too great to either collect or assimilate. More needs to be done to condense and consolidate information on many subjects - but by whom?

563 One method that I have used for surveying unfamiliar literature is to start with one or more current articles in well known journals and work backward through the literature cited in the papers. This method depends upon good library facilities. The use of abstracting journals and comprehensive review articles is possibly more rapid and is less dependent on the library facilities.

018 Data retrieval should be a regular service of libraries.

479 The purpose of this questionnaire is, I presume, to find the current status of information transfer and to devise better methods for it. In my opinion the journal system is inefficient. There is too great a time lag between the date of completion of the research and its publication. Articles on the same topic are too often published in journals without wide circulation.

248 Few other people are engaged in studying the sawfly and therefore there is not much material published which has direct bearing on my work.

090 The volume of information on many subjects is becoming so great and widespread in various publication media it is becoming increasingly difficult to keep up, even with recent steps to overcome this problem.

096 Current awareness comes from the diverse personal contacts and the scanning of broad spectrum journals, such as Science, Nature, C and E News, etc. This is firmed up by reviews, selected abstract sections, and all too infrequent time to browse. Biggest needs are in this firming up through specialized brief reviews (Anal. Chem. and Nutrition Reviews are excellent) and annotated bibliographies. Most used and most useful special library services are in obscure reference tracing, catalogues, and reference lists to non-journal report holdings, legal reference search, and quick guidance into key references in an unfamiliar field.



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